

Exhibit H

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SANTA ANA DIVISION

ENTROPIC COMMUNICATIONS, LLC,

PLAINTIFF,

vs.

CASE NO.:

2:23-CV-01049-JWH-KES

LEAD CASE

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST CABLE COMMUNICATIONS
MANAGEMENT, LLC,

DEFENDANTS.

2:23-CV-01050-JWH-KES

_____/ RELATED CASE

VIDEOTAPED DEPOSITION OF SANDEEP CHATTERJEE, PH.D.

VIA REMOTE COUNSEL VIDEOCONFERENCE

FRIDAY, MAY 10, 2024

VOLUME I

STENOGRAPHICALLY REPORTED BY:

MEGAN F. ALVAREZ, RPR, CSR No. 12470

JOB NO. 6684756

<p style="text-align: right;">Page 2</p> <p>1 UNITED STATES DISTRICT COURT 2 CENTRAL DISTRICT OF CALIFORNIA 3 SANTA ANA DIVISION 4 5 ENTROPIC COMMUNICATIONS, LLC, 6 PLAINTIFF, CASE NO.: 7 vs. 2:23-CV-01049-JWH-KES LEAD CASE 8 COMCAST CORPORATION; COMCAST 9 CABLE COMMUNICATIONS, LLC; AND 10 COMCAST CABLE COMMUNICATIONS 11 MANAGEMENT, LLC, 12 DEFENDANTS. 2:23-CV-01050-JWH-KES _____/ RELATED CASE 13 14 15 Videotaped Videoconference Deposition of 16 SANDEEP CHATTERJEE, PH.D., Volume I, taken on behalf of 17 Plaintiff, VIA REMOTE COUNSEL. Deponent testifying from 18 Atherton, California, beginning at 9:08 a.m. and ending 19 at 11:37 a.m. on Friday, May 10, 2024, before 20 Megan F. Alvarez, RPR, Certified Shorthand Reporter 21 No. 12470. 22 23 24 25</p>	<p style="text-align: right;">Page 4</p> <p>1 APPEARANCES: (CONTINUED) 2 3 FOR DEFENDANTS: 4 BY: KRISHNAN PADMANABHAN, ESQ. 5 WINSTON & STRAWN LLP 6 200 PARK AVENUE 7 NEW YORK, NEW YORK 10166 8 212.294.6700 9 212.294.4700 FAX 10 KPADMANABHAN@WINSTON.COM 11 AND 12 BY: KATHRYN BI, ESQ. 13 DAVID POLK WARDWELL LLP 14 450 LEXINGTON AVENUE, 11TH FLOOR 15 NEW YORK, NEW YORK 10017 16 17 FOR DEFENDANT COX: 18 BY: SARAH KAMRAM, ESQ. 19 KILPATRICK TOWNSEND STOCKTON LLP 20 1801 CENTURY PARK EAST, SUITE 2300 21 LOS ANGELES, CALIFORNIA 90067 22 SKAMRAN@KTSLAW.COM 23 24 THE VIDEO OPERATOR: 25 JEFF NICHOLS, VERITEXT</p>
<p style="text-align: right;">Page 3</p> <p>1 APPEARANCES: (ALL PARTIES APPEARING VIA VIDEOCONFERENCE) 2 3 FOR PLAINTIFF: 4 BY: VINCE GALLUZZO, ESQ. 5 K&L GATES 6 300 SOUTH TRYON STREET 7 SUITE 1000 8 CHARLOTTE, NORTH CAROLINA 28202 9 VINCENT.GALLUZZO@KLGATES.COM 10 AND 11 BY: MATTHEW BLAIR, ESQ. 12 K&L GATES 13 2801 VIA FORTUNA, SUITE 350 14 AUSTIN, TEXAS 78746 15 16 17 18 19 20 21 22 23 24 25</p>	<p style="text-align: right;">Page 5</p> <p>1 INDEX 2 WITNESS EXAMINATION 3 SANDEEP CHATTERJEE, PH.D. 4 VOLUME I 5 BY MR. GALLUZZO 9 6 7 --o0o-- 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>

<p style="text-align: right;">Page 6</p> <p>1 EXHIBITS MARKED FOR IDENTIFICATION</p> <p>2 No. Description Page</p> <p>3 Exhibit 1 Declaration of Dr. Sandeep13</p> <p>4 Chatterjee Regarding Claim</p> <p>5 Construction</p> <p>6</p> <p>7 Exhibit 2 Errata to Declaration of13</p> <p>8 Dr. Sandeep Chatterjee</p> <p>9 Regarding Claim Construction</p> <p>10</p> <p>11 Exhibit 3 Curriculum Vitae, Exhibit F to13</p> <p>12 Declaration of Dr. Sandeep</p> <p>13 Chatterjee</p> <p>14</p> <p>15 Exhibit 4 Patent No. US 10,135,682 B2,13</p> <p>16 dated 11/20/18, Exhibit N to</p> <p>17 Declaration of Dr. Sandeep</p> <p>18 Chatterjee</p> <p>19</p> <p>20 Exhibit 5 U.S. Patent Application47</p> <p>21 Publication Number 2003/66087,</p> <p>22 dated April 3, 2003</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 8</p> <p>1 FRIDAY, MAY 10, 2024</p> <p>2 9:08 A.M.</p> <p>3</p> <p>4 --o0o--</p> <p>5</p> <p>6 THE VIDEO OPERATOR: Good morning. We're</p> <p>7 going on the record at 9:08 a.m. on May 10, 2024.</p> <p>8 This is Media Unit 1 of the video-recorded</p> <p>9 deposition of Dr. Sandeep Chatterjee taken by</p> <p>10 counsel for plaintiff in the matter of the Entropic</p> <p>11 Communications, LLC, vs. Comcast Corporation,</p> <p>12 et al., filed in the United States District Court</p> <p>13 for the Central District of California, Case Number</p> <p>14 2:22-CV-07775-JWH-JEM.</p> <p>15 This deposition is being conducted</p> <p>16 remotely using virtual technology.</p> <p>17 My name is Jeff Nichols, representing</p> <p>18 Veritext Legal Solutions, and I'm the videographer.</p> <p>19 The court reporter is Megan Alvarez from</p> <p>20 the firm Veritext Legal Solutions.</p> <p>21 Counsel will now state their appearances</p> <p>22 and affiliations for the record starting with the</p> <p>23 noticing attorney.</p> <p>24 MR. GALLUZZO: This is Vince Galluzzo from</p> <p>25 K&L Gates on behalf of Entropic. With me is my</p>
<p style="text-align: right;">Page 7</p> <p>1 EXHIBITS MARKED FOR IDENTIFICATION</p> <p>2 No. Description Page</p> <p>3 Exhibit 6 U.S. Patent Application47</p> <p>4 Publication Number 2004/45035,</p> <p>5 dated March 4, 2004</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 9</p> <p>1 colleague, Matt Blair.</p> <p>2 MR. PADMANABHAN: This is</p> <p>3 Krishnan Padmanabhan of Winston Strawn on behalf of</p> <p>4 Comcast. And with me I have Kathryn Bi of</p> <p>5 Davis Polk & Wardwell.</p> <p>6 THE VIDEO OPERATOR: Ms. Kamran?</p> <p>7 MS. KAMRAN: Hi. Sarah Kamran from</p> <p>8 Kilpatrick Townsend & Stockton representing Cox.</p> <p>9 THE VIDEO OPERATOR: Thank you so much.</p> <p>10 Will the court reporter please swear in</p> <p>11 the witness, and then, Counsel, you may proceed.</p> <p>12 --o0o--</p> <p>13 EXAMINATION</p> <p>14 BY MR. GALLUZZO:</p> <p>15 Q. Good morning, Dr. Chatterjee.</p> <p>16 A. Good morning.</p> <p>17 Q. I apologize for these initial questions,</p> <p>18 but I think they're important.</p> <p>19 I understand you were recently in a car</p> <p>20 accident, and I'm sorry to hear that.</p> <p>21 How long ago did that occur?</p> <p>22 A. It wasn't a car accident. I just had to</p> <p>23 have surgery.</p> <p>24 Q. Oh, my misunderstanding.</p> <p>25 How long ago was your surgery?</p>

<p style="text-align: right;">Page 10</p> <p>1 A. Two weeks and two days.</p> <p>2 Q. As a result of that surgery, were you</p> <p>3 placed on any medications?</p> <p>4 A. I was, yes.</p> <p>5 Q. What medications were you placed on?</p> <p>6 A. Are you talking about back then or now?</p> <p>7 Q. Well, let's work backwards.</p> <p>8 So today, are you taking any medications</p> <p>9 related to that surgery?</p> <p>10 A. Yes.</p> <p>11 Q. What medications?</p> <p>12 A. Aspirin. I think it's baby aspirin.</p> <p>13 Q. Anything else?</p> <p>14 A. No.</p> <p>15 Q. Prior to today, did you take any</p> <p>16 medications related to your surgery other than</p> <p>17 aspirin?</p> <p>18 A. Yes.</p> <p>19 Q. When was the most recent medication you</p> <p>20 took other than aspirin?</p> <p>21 A. I think I stopped taking all of the pain</p> <p>22 medicine about a week after surgery. So about</p> <p>23 probably like eight or nine days ago.</p> <p>24 Q. And, generally speaking -- I don't need to</p> <p>25 know doses -- but what were those pain medications?</p>	<p style="text-align: right;">Page 12</p> <p>1 construction.</p> <p>2 A. No.</p> <p>3 Q. Do you have any reason to believe that</p> <p>4 your taking of pain medication up till and about</p> <p>5 eight or nine days ago would in any way impair your</p> <p>6 ability to testify here today truthfully,</p> <p>7 accurately, and to the best of your ability?</p> <p>8 A. No, not at all. I just -- apart from</p> <p>9 maybe needing a little bit more time during breaks</p> <p>10 and things like that, I don't -- nothing with</p> <p>11 regards to my ability to testify.</p> <p>12 Q. Okay. Any other reasons do you have any</p> <p>13 concerns about your ability to testify here today?</p> <p>14 A. No.</p> <p>15 Q. I'm happy to accommodate breaks whenever</p> <p>16 needed and for however long you need, so please just</p> <p>17 ask.</p> <p>18 A. Thank you.</p> <p>19 Q. So, Dr. Chatterjee, to get into the</p> <p>20 substance of the deposition here, I've already</p> <p>21 premarked four exhibits in Exhibit Share. Feel free</p> <p>22 to refer to those at any time. I just ask since</p> <p>23 we're remote that if you are referring to something,</p> <p>24 either in Exhibit Share or in any of the printed</p> <p>25 copies you have in front of you, that you tell me</p>
<p style="text-align: right;">Page 11</p> <p>1 A. So I think the pain medications were</p> <p>2 Tylenol and oxycodone or codeine.</p> <p>3 Q. And you said you stopped taking the</p> <p>4 Tylenol and the oxycodone or codeine approximately</p> <p>5 eight or nine days ago?</p> <p>6 A. Yes.</p> <p>7 Q. Do you recall the date of your surgery?</p> <p>8 A. I can look it up. I just have to look at</p> <p>9 the calendar.</p> <p>10 Q. Let me maybe ask an easier question.</p> <p>11 Was your surgery before or after you</p> <p>12 issued your declarations regarding claim</p> <p>13 construction in this case?</p> <p>14 A. It was after the declaration. Like I</p> <p>15 said, it was about two weeks and two days ago. So I</p> <p>16 think it was the 23rd.</p> <p>17 Q. Of April?</p> <p>18 A. Yes.</p> <p>19 Q. Prior to your surgery and prior to your</p> <p>20 issuance of your declaration regarding claim</p> <p>21 construction, were you taking any pain medications?</p> <p>22 A. Prior to my surgery? Is that your</p> <p>23 question?</p> <p>24 Q. Yeah, prior to your surgery and prior to</p> <p>25 your issuance of your declaration regarding claim</p>	<p style="text-align: right;">Page 13</p> <p>1 that you're doing that.</p> <p>2 Is that fair?</p> <p>3 A. Yes.</p> <p>4 So I think I'm just gonna download the</p> <p>5 four exhibits just to make it easier.</p> <p>6 Q. That's fine. While you're doing that,</p> <p>7 I'll state for the record what they are.</p> <p>8 MR. GALLUZZO: Exhibit 1 is the April 19th</p> <p>9 Chatterjee declaration regarding claim construction.</p> <p>10 (Whereupon Exhibit 1 was marked for</p> <p>11 identification.)</p> <p>12 MR. GALLUZZO: Exhibit 2 is an errata that</p> <p>13 we received with what I believe are minor</p> <p>14 corrections to that declaration.</p> <p>15 (Whereupon Exhibit 2 was marked for</p> <p>16 identification.)</p> <p>17 MR. GALLUZZO: Exhibit 3 is your CV,</p> <p>18 which -- Exhibit F to your declaration.</p> <p>19 (Whereupon Exhibit 3 was marked for</p> <p>20 identification.)</p> <p>21 MR. GALLUZZO: And Exhibit 4 is the</p> <p>22 '682 patent which was originally Exhibit N, as in</p> <p>23 Nancy, to your declaration.</p> <p>24 (Whereupon Exhibit 4 was marked for</p> <p>25 identification.)</p>

4 (Pages 10 - 13)

<p style="text-align: right;">Page 14</p> <p>1 BY MR. GALLUZZO:</p> <p>2 Q. Dr. Chatterjee, have you had a chance to</p> <p>3 download those?</p> <p>4 A. I -- yes, I just downloaded them.</p> <p>5 Q. Dr. Chatterjee, is it correct that the</p> <p>6 Exhibit 2, the errata, are minor corrections to your</p> <p>7 original declaration?</p> <p>8 A. Yes, they're extremely minor, just some</p> <p>9 exhibit numbering/naming issues.</p> <p>10 Q. Apart from the changes reflected in that</p> <p>11 errata, do you have any other changes or updates to</p> <p>12 make to your declaration here today?</p> <p>13 A. No. I stand behind that declaration.</p> <p>14 It's accurate.</p> <p>15 Q. Are you here today to provide any</p> <p>16 additional opinions that were not already in the</p> <p>17 scope of your declaration?</p> <p>18 A. I don't believe so. I'm happy to answer</p> <p>19 whatever questions you have for me, but I believe my</p> <p>20 opinions are set forth clearly within my</p> <p>21 declaration.</p> <p>22 Q. I understand you have opinions about the</p> <p>23 meaning of two claim terms or phrases. I'll for</p> <p>24 short call them CMTS and SNR-related metric. Let's</p> <p>25 talk about CMTS briefly first.</p>	<p style="text-align: right;">Page 16</p> <p>1 A. I -- equipment -- and, again, this is</p> <p>2 explained clearly in the declaration. By</p> <p>3 "equipment," I'm saying that it is hardware, but it</p> <p>4 doesn't have to be hardware only. There can be</p> <p>5 software running on that hardware, but it is</p> <p>6 equipment. It is a physical equipment.</p> <p>7 Q. Okay. So that was maybe my</p> <p>8 misunderstanding and could clear up quite a bit of</p> <p>9 questioning here today. So I just want to be sure I</p> <p>10 heard you right.</p> <p>11 It is not your opinion that CMTS, as used</p> <p>12 in the '682 patent, can only encompass hardware. It</p> <p>13 is your opinion that it can also include software.</p> <p>14 I understand you have other disputes; is</p> <p>15 that right?</p> <p>16 A. I want to clarify. Your question was a</p> <p>17 little bit vague.</p> <p>18 So what I'm saying is that one of ordinary</p> <p>19 skill in the July 2012 time frame would have an</p> <p>20 understanding that CMTS's equipment which would mean</p> <p>21 that it's a physical thing, a physical piece of</p> <p>22 hardware, and there could be software running on</p> <p>23 that physical piece of hardware.</p> <p>24 Q. Okay. So I think I understand. But to</p> <p>25 confirm, you're not saying that CMTS, as understood</p>
<p style="text-align: right;">Page 15</p> <p>1 Do you understand what I mean when I say</p> <p>2 "CMTS"?</p> <p>3 A. I do.</p> <p>4 Q. In your own words, what's your basis for</p> <p>5 your opinion that CMTS in the '682 patent is</p> <p>6 properly understood as, quote, equipment at which</p> <p>7 the cable modem's connection to the hybrid fiber</p> <p>8 coaxial network terminates?</p> <p>9 MR. PADMANABHAN: Objection. Form.</p> <p>10 THE WITNESS: Well, as I've explained in</p> <p>11 my declaration, the term -- the acronym CMTS, which</p> <p>12 is an acronym for cable modem termination system, it</p> <p>13 was a term of art at the July 2012 time frame. And</p> <p>14 one of ordinary skill would have known the meaning</p> <p>15 of CMTS, or cable modem termination system, and set</p> <p>16 forth that meaning.</p> <p>17 And in addition to that, I've cited to a</p> <p>18 multitude of contemporaneous documents that</p> <p>19 demonstrate that that understanding that I'm stating</p> <p>20 that -- that a person of ordinary skill in the art</p> <p>21 would have had of CMTS. I've cited to documentation</p> <p>22 that corroborates that understanding.</p> <p>23 BY MR. GALLUZZO:</p> <p>24 Q. By "equipment," do you mean the CMTS in</p> <p>25 the '682 patent is hardware only?</p>	<p style="text-align: right;">Page 17</p> <p>1 by those of skill in the art in relation to the</p> <p>2 '682 patent, could not include software?</p> <p>3 MR. PADMANABHAN: Objection. Form. Asked</p> <p>4 and answered.</p> <p>5 THE WITNESS: Again, the way you're asking</p> <p>6 question is very vague and so --</p> <p>7 BY MR. GALLUZZO:</p> <p>8 Q. Okay. I'll withdraw it. I'll withdraw</p> <p>9 and ask it different way.</p> <p>10 You're not saying that those of skill in</p> <p>11 the art in 2012 would read "CMTS" in the '682 patent</p> <p>12 and believe that that term encompassed only</p> <p>13 hardware?</p> <p>14 MR. PADMANABHAN: Object to form. Asked</p> <p>15 and answered.</p> <p>16 THE WITNESS: As I've explained, as of</p> <p>17 July 2012, one of ordinary skill would understand</p> <p>18 that it can be hardware. It can be only hardware.</p> <p>19 But there can also be software that is running on</p> <p>20 top of that hardware.</p> <p>21 BY MR. GALLUZZO:</p> <p>22 Q. All right. Let's talk about SNR-related</p> <p>23 metric for a moment.</p> <p>24 In your own words, what is the basis for</p> <p>25 your opinion that SNR-related metric is indefinite?</p>

<p style="text-align: right;">Page 18</p> <p>1 MR. PADMANABHAN: Objection. Form.</p> <p>2 THE WITNESS: I'm not really sure what you</p> <p>3 mean by in my own words.</p> <p>4 The declaration sets forth a number of</p> <p>5 reasons why SNR-related metric would be indefinite</p> <p>6 to those of ordinary skill. But, essentially,</p> <p>7 the -- the basic point is that one of ordinary skill</p> <p>8 would not with reasonable certainty understand the</p> <p>9 bounds of the term. Those of ordinary skill would</p> <p>10 simply not understand the scope and the bounds of</p> <p>11 that term.</p> <p>12 BY MR. GALLUZZO:</p> <p>13 Q. If you take a look at your declaration,</p> <p>14 either one, the original or the errata, does not</p> <p>15 matter to me, and specifically go to paragraph 34, I</p> <p>16 have a question about that. Let me know when you're</p> <p>17 there, please.</p> <p>18 A. Okay. And you asked me to tell you what</p> <p>19 I'm looking at, either the digital copy or the</p> <p>20 printout. I'm looking at the printout that's here</p> <p>21 before me.</p> <p>22 Q. That's fine with me.</p> <p>23 A. Okay. I'm at paragraph 34.</p> <p>24 Q. So 34 sets out your understanding of the</p> <p>25 legal requirements for indefiniteness as provided to</p>	<p style="text-align: right;">Page 20</p> <p>1 A. Are you referring to the knowledge of one</p> <p>2 of ordinary skill?</p> <p>3 Q. Yes.</p> <p>4 A. Yes, I did consider that.</p> <p>5 Q. And even with that background knowledge of</p> <p>6 the art, you still don't think that the claim term</p> <p>7 is definite?</p> <p>8 A. I believe it's very clear that it's --</p> <p>9 that one of ordinary skill would not be able to</p> <p>10 understand with reasonable certainty what the bounds</p> <p>11 are. In fact, even Dr. Holobinko seems to change</p> <p>12 his mind on what the meaning of the term is. He has</p> <p>13 multiple changing definitions.</p> <p>14 MR. GALLUZZO: Move to strike as</p> <p>15 nonresponsive after the words "in fact."</p> <p>16 BY MR. GALLUZZO:</p> <p>17 Q. Dr. Chatterjee, could you turn to what</p> <p>18 I've marked as Exhibit 3, which is your CV?</p> <p>19 A. Okay.</p> <p>20 Q. It should be Exhibit F to your original</p> <p>21 declaration.</p> <p>22 A. Okay.</p> <p>23 Q. Is this a true and accurate copy of your</p> <p>24 current CV?</p> <p>25 A. I believe it was as of the date that it</p>
<p style="text-align: right;">Page 19</p> <p>1 you by counsel for Comcast; is that right?</p> <p>2 A. Yes. It's a summary of that, yes.</p> <p>3 Q. Okay. Is this the legal principle that</p> <p>4 you applied in your analysis to come to your</p> <p>5 indefiniteness opinion?</p> <p>6 A. So, to be clear, I'm not making a legal</p> <p>7 conclusion; I'm providing technical opinions. And</p> <p>8 the technical opinion that I'm providing is that one</p> <p>9 of ordinary skill in view of the patent would simply</p> <p>10 not be able to tell with reasonable certainty what</p> <p>11 the bounds of that term are.</p> <p>12 Q. In coming to that technical opinion, did</p> <p>13 you consider the language of the claims, the</p> <p>14 specification, and the prosecution history?</p> <p>15 A. I did consider that. I believe I've cited</p> <p>16 to all of those in my declaration.</p> <p>17 In addition to that, I've considered other</p> <p>18 issues as well. I've reviewed the declarations from</p> <p>19 Dr. Holobinko.</p> <p>20 And so, yes, to answer your question, I</p> <p>21 did consider those, but I've considered other</p> <p>22 materials as well.</p> <p>23 Q. In coming to your technical opinions as</p> <p>24 stated in your April 19th declaration, did you also</p> <p>25 consider background knowledge of the art?</p>	<p style="text-align: right;">Page 21</p> <p>1 was submitted.</p> <p>2 Q. At least for purposes of this case, is all</p> <p>3 relevant work experience of yours listed here?</p> <p>4 A. I believe relevant work experience that</p> <p>5 can be listed is listed, yes.</p> <p>6 Q. Nothing's missing?</p> <p>7 A. Say that again. You broke up a little</p> <p>8 bit.</p> <p>9 MR. PADMANABHAN: Objection. Form.</p> <p>10 BY MR. GALLUZZO:</p> <p>11 Q. Nothing is missing?</p> <p>12 MR. PADMANABHAN: Same objection.</p> <p>13 THE WITNESS: Well, like I said, things</p> <p>14 that can be listed on a public CV are listed, yes.</p> <p>15 BY MR. GALLUZZO:</p> <p>16 Q. Your CV does not list involvement in</p> <p>17 designing cable systems?</p> <p>18 A. Can you be more specific what you mean by</p> <p>19 "in designing cable systems"?</p> <p>20 Q. Have you ever designed a cable system?</p> <p>21 MR. PADMANABHAN: Objection. Form.</p> <p>22 THE WITNESS: That's my question. What do</p> <p>23 you mean by "cable system"?</p> <p>24 BY MR. GALLUZZO:</p> <p>25 Q. Have you ever designed a system for use in</p>

<p style="text-align: right;">Page 22</p> <p>1 cable television systems?</p> <p>2 A. Say that again? Have I ever designed a</p> <p>3 system for use in cable television systems? Is that</p> <p>4 your question?</p> <p>5 Yes, my -- my Ph.D. was on home and office</p> <p>6 automation. Big parts of my Ph.D. were looking at</p> <p>7 interfacing with cable TV systems and cable modems.</p> <p>8 Around that time when -- when DOCSIS came out, that</p> <p>9 was a major time period because it really ushered in</p> <p>10 the always on connectivity. And given that my Ph.D.</p> <p>11 work was on home automation, office automation, it</p> <p>12 dovetailed directly with that technology. I did</p> <p>13 significant research into what was happening with</p> <p>14 cable TV systems, including DOCSIS.</p> <p>15 And then the applications in my Ph.D,</p> <p>16 which I believe is listed on my -- my CV, was</p> <p>17 selected as one of the top inventions in computing</p> <p>18 at MIT, and it showcased in a time capsule at the</p> <p>19 Boston Museum of Science.</p> <p>20 An application of that was looking at how</p> <p>21 television systems could be automated, made more</p> <p>22 intelligent, how there could be coordination and</p> <p>23 communications with other home and office devices.</p> <p>24 So, yes, I have significant experience in</p> <p>25 developing network-based systems, in interfacing</p>	<p style="text-align: right;">Page 24</p> <p>1 of router. And not only my Ph.D work touched on</p> <p>2 aspects of that, even my master's work touched on</p> <p>3 routing capabilities, networking, and how to route</p> <p>4 data within networks.</p> <p>5 My master's work was on 3D mesh networks,</p> <p>6 whereas my Ph.D work was on other types of network</p> <p>7 systems and network topologies.</p> <p>8 Q. So the answer to my question is no?</p> <p>9 MR. PADMANABHAN: Objection. Form.</p> <p>10 THE WITNESS: The answer to your question</p> <p>11 is I have significant experience with systems that</p> <p>12 are similar to CMTSs. Like I said, they're similar</p> <p>13 to routers or gateways.</p> <p>14 A CMTS, as I've explained in the body of</p> <p>15 my declaration -- or I think I've cited to some</p> <p>16 dictionary definitions that state that a CMTS is, in</p> <p>17 some senses, a gateway on one side having the</p> <p>18 Internet and on the other side terminating the HFC</p> <p>19 network.</p> <p>20 So, as I just explained to you, I have</p> <p>21 significant experience in developing routers and</p> <p>22 routing technology. So I believe my answer is I</p> <p>23 have significant experience in these technologies.</p> <p>24 BY MR. GALLUZZO:</p> <p>25 Q. I assume you're familiar with RF</p>
<p style="text-align: right;">Page 23</p> <p>1 with and working with cable systems. And that work</p> <p>2 continued not only from the late '90s, onwards for</p> <p>3 several years thereafter.</p> <p>4 Q. Have you ever worked in designing a cable</p> <p>5 modem?</p> <p>6 A. I have never worked at a cable modem</p> <p>7 company. And so if that's your question, no.</p> <p>8 Q. Have you ever worked in designing a</p> <p>9 set-top box?</p> <p>10 A. I have actually. In terms of, again, my</p> <p>11 Ph.D work that I just explained to you, it was with</p> <p>12 regards to home automation. And I believe even the</p> <p>13 brief description about my technical background in</p> <p>14 my declaration touches on some aspects of that.</p> <p>15 And it was a type of a set-top box that</p> <p>16 would make a television intelligent. It would -- it</p> <p>17 would capture clicks from a remote control. It</p> <p>18 would learn from those clicks. It would control the</p> <p>19 communications with the television set.</p> <p>20 So, yes, I have designed and developed</p> <p>21 research advanced intelligence set-top boxes.</p> <p>22 Q. Have you ever designed a CMTS?</p> <p>23 A. Well, a CMTS, like we've talked or we've</p> <p>24 touched on briefly and is set forth extensively in</p> <p>25 my declaration, it's a type of gateway. It's a type</p>	<p style="text-align: right;">Page 25</p> <p>1 engineering principles then?</p> <p>2 A. I think that's a very broad term. If you</p> <p>3 ask me something specific, I'm happy to answer your</p> <p>4 question.</p> <p>5 Q. Sure.</p> <p>6 Do all RF frequencies travel at the same</p> <p>7 speed through a coaxial cable?</p> <p>8 MR. PADMANABHAN: Objection. Form.</p> <p>9 THE WITNESS: Well, I think it depends on</p> <p>10 the entire setup. This seems like a theoretical</p> <p>11 question, a hypothetical. I really need to</p> <p>12 understand exactly what the setup is, and then I can</p> <p>13 answer your question.</p> <p>14 BY MR. GALLUZZO:</p> <p>15 Q. Assume a theoretically lossless and no</p> <p>16 impedance situation.</p> <p>17 Do all RF frequencies travel at the same</p> <p>18 speed through a coaxial cable?</p> <p>19 MR. PADMANABHAN: Objection. Form.</p> <p>20 THE WITNESS: Can you point me to where in</p> <p>21 my declaration a finding on this?</p> <p>22 BY MR. GALLUZZO:</p> <p>23 Q. I'm just trying to get a sense for whether</p> <p>24 what you say is true, is that your background,</p> <p>25 knowledge, and experience is relevant related to the</p>

<p style="text-align: right;">Page 26</p> <p>1 matters at issue in this case.</p> <p>2 If you can't answer, that's fine. I can</p> <p>3 move on --</p> <p>4 A. Well.</p> <p>5 MR. PADMANABHAN: Hold on. Is there a</p> <p>6 pending question?</p> <p>7 MR. GALLUZZO: Yeah.</p> <p>8 BY MR. GALLUZZO:</p> <p>9 Q. The pending question is: Do all RF</p> <p>10 frequencies travel at the same speed through a</p> <p>11 coaxial cable?</p> <p>12 MR. PADMANABHAN: Objection. Form.</p> <p>13 THE WITNESS: Well, again, as I said, if</p> <p>14 you can point me to where I'm opining on this, I'd</p> <p>15 be happy to review it and answer your question.</p> <p>16 But it seems like you're asking me a very</p> <p>17 vague hypothetical, and I'd need to know more</p> <p>18 information.</p> <p>19 BY MR. GALLUZZO:</p> <p>20 Q. What is a DOCSIS data carrier?</p> <p>21 MR. PADMANABHAN: Objection. Form.</p> <p>22 THE WITNESS: Can you provide the DOCSIS</p> <p>23 specification so I can take a look at it?</p> <p>24 BY MR. GALLUZZO:</p> <p>25 Q. Can you not answer without answering in</p>	<p style="text-align: right;">Page 28</p> <p>1 A. I'm not sure what you mean by am I</p> <p>2 familiar with them, but OFDM is orthogonal frequency</p> <p>3 division multiplexing.</p> <p>4 Q. Do you know what an OFDM carrier is?</p> <p>5 A. Well, it's -- the carrier is the signal,</p> <p>6 and OFDM is a way of modulating or using that</p> <p>7 signal.</p> <p>8 Q. Can an OFDM carrier have a signal-to-noise</p> <p>9 ratio in SNR?</p> <p>10 MR. PADMANABHAN: Objection. Form.</p> <p>11 THE WITNESS: Again, I don't understand</p> <p>12 your question. You said, "Can an OFDM carrier have</p> <p>13 SNR?"</p> <p>14 BY MR. GALLUZZO:</p> <p>15 Q. Yes, that's my question.</p> <p>16 A. I don't even understand what that means</p> <p>17 for an OFDM carrier to have SNR.</p> <p>18 Q. Can you measure SNR of an OFDM carrier?</p> <p>19 Is that possible?</p> <p>20 MR. PADMANABHAN: Objection. Form.</p> <p>21 THE WITNESS: Your question is: Can SNR</p> <p>22 be measured for a signal? Yes, SNR can be measured</p> <p>23 for a signal.</p> <p>24 Your -- so your -- these questions that</p> <p>25 you're asking, Number 1, are very vague, but they're</p>
<p style="text-align: right;">Page 27</p> <p>1 relation to the DOCSIS specification?</p> <p>2 MR. PADMANABHAN: Objection. Form.</p> <p>3 THE WITNESS: The DOCSIS specification is,</p> <p>4 I believe, several hundreds of pages long, and I've</p> <p>5 not memorized everything within those</p> <p>6 specifications.</p> <p>7 BY MR. GALLUZZO:</p> <p>8 Q. Sitting here today, without referencing</p> <p>9 the DOCSIS standard, are you able to tell me what a</p> <p>10 DOCSIS data carrier is?</p> <p>11 MR. PADMANABHAN: Objection. Form.</p> <p>12 THE WITNESS: Again, like I explained, the</p> <p>13 DOCSIS specifications and documents are hundreds and</p> <p>14 hundreds of pages long. I have not memorized them.</p> <p>15 BY MR. GALLUZZO:</p> <p>16 Q. What's a QAM carrier, Q-A-M carrier?</p> <p>17 MR. PADMANABHAN: Objection. Form.</p> <p>18 THE WITNESS: Basically QAM is a</p> <p>19 quadrature amplitude modulation. It's a type of</p> <p>20 modulation which is oftentimes done in cable</p> <p>21 systems. There are different ways. There's 16, 64</p> <p>22 different types of QAM. And they basically modulate</p> <p>23 the signal to represent different symbols.</p> <p>24 BY MR. GALLUZZO:</p> <p>25 Q. Are you familiar with OFDM carriers?</p>	<p style="text-align: right;">Page 29</p> <p>1 also -- they don't make sense because you're</p> <p>2 applying the type of usage and then talking about</p> <p>3 measuring SNR for that type of usage.</p> <p>4 And on top of that, I don't see where this</p> <p>5 is in my declaration.</p> <p>6 BY MR. GALLUZZO:</p> <p>7 Q. I don't see it in your declaration either,</p> <p>8 but, Dr. Chatterjee, you're telling us that you have</p> <p>9 sufficient relevant experience to this case, so I'm</p> <p>10 testing.</p> <p>11 So here's my question. I'll ask again.</p> <p>12 Can an OFDM carrier have a measurable</p> <p>13 signal-to-noise ratio?</p> <p>14 MR. PADMANABHAN: Objection. Form.</p> <p>15 THE WITNESS: Well, I think, as I've</p> <p>16 already explained to you, I don't really understand</p> <p>17 your question because it's vague, it's not a</p> <p>18 complete hypothetical, and I don't see how it's</p> <p>19 relevant to opinions that are set forth in my</p> <p>20 declaration.</p> <p>21 As I've explained, I have significant</p> <p>22 experience. I've built systems, networking systems.</p> <p>23 Here with regards to the SNR term, the SNR-related</p> <p>24 metric's term, systems that I've built had to deal</p> <p>25 with SNR as well.</p>

<p style="text-align: right;">Page 30</p> <p>1 And so I don't understand these questions 2 and the relationship to my declaration whatsoever. 3 BY MR. GALLUZZO: 4 Q. Going back to QAM carriers or QAM, as you 5 pronounced it, what is the typical bandwidth in the 6 United States for a QAM carrier? 7 MR. PADMANABHAN: Objection. Form. 8 THE WITNESS: I believe it's either 9 6 megahertz or 8 megahertz. I don't remember 10 exactly off the top of my head. 11 Again, this would be in the DOCSIS 12 specifications and in other specifications. And 13 engineers don't memorize everything. That's the 14 whole point of having specifications, so people can 15 review specifications. 16 BY MR. GALLUZZO: 17 Q. So earlier when I asked about OFDM 18 carriers and SNR, I think you had testified that you 19 can take SNR for a signal. So let me follow up on 20 that. 21 Here's my question: How would one of 22 skill in the art in 2012 measure the performance of 23 an OFDM channel? 24 MR. PADMANABHAN: Objection. Form. 25 THE WITNESS: I'm not -- again, you've --</p>	<p style="text-align: right;">Page 32</p> <p>1 need to think about it, consider it, and then I 2 would be able to be give you an answer. 3 BY MR. GALLUZZO: 4 Q. Prior to your work on this case, were you 5 familiar with CMTS systems in use in 2012? 6 A. I think I answered that question already, 7 that I've been working in this space since, I 8 believe, the late 1990s. So, yes, 19- -- late 1990s 9 is prior to 2012 and prior to my involvement in this 10 case. 11 Q. Are you familiar with the CMTS systems 12 that Comcast and Cox used in 2012? 13 MR. PADMANABHAN: Objection. Form. 14 THE WITNESS: Off the top of my head, I 15 don't remember if I looked at what specific MSOs 16 were using, but I do recall what were -- what the 17 major vendors were providing. 18 BY MR. GALLUZZO: 19 Q. Do you know whether Comcast and Cox were 20 using distributed CMTSs in 2012 or modulated CMTSs 21 in 2012? 22 MR. PADMANABHAN: Objection. Form. 23 Compound. Vague. 24 THE WITNESS: I think your question cut 25 off a little bit. Can you repeat that, please?</p>
<p style="text-align: right;">Page 31</p> <p>1 you're basically changing the question it seems 2 like. Now you're talking about measure the 3 performance of a OFDM channel. So -- but then you 4 said you're going back to the original question, but 5 you're asking something different here. So it's -- 6 it's, again, a very confusing question. 7 BY MR. GALLUZZO: 8 Q. All right. Well, then I'll just ask the 9 question without a lead-in. 10 How would one of skill in the art in 2012 11 measure the performance of an OFDM channel? 12 A. This is my exact point, that you're not 13 providing information. What is being transmitted? 14 How is it being transmitted? Are we talking about a 15 lab situation where you're gonna connect up some 16 kind of an oscilloscope? There are too many 17 variables here that you're not providing. 18 Q. Are you not able to answer my question 19 without answering those variables? 20 MR. PADMANABHAN: Objection. Form. 21 THE WITNESS: Like I said, your question 22 is very vague and does not make sense from a 23 technical perspective. 24 And so it's not possible to answer without 25 knowing the specifics of the situation. I would</p>	<p style="text-align: right;">Page 33</p> <p>1 BY MR. GALLUZZO: 2 Q. Do you know whether either Comcast or Cox 3 was using a distributed or a modular CMTS in 2012? 4 MR. PADMANABHAN: Objection. Form. 5 Compound. Vague. 6 THE WITNESS: Well, with regards to the 7 opinions that I've set forth in my declaration, I've 8 set forth opinions from the perspective of one of 9 ordinary skill. 10 And one of ordinary skill would understand 11 a CMTS could be, as I've explained in the body of my 12 declaration, it could have, for example, a modular 13 design with regards to, for example, the downstream 14 aspects of it. And that allowed more scalability, 15 but it was, nonetheless, a piece of equipment that 16 was located in the head end or other distribution 17 hub for the MSO. 18 BY MR. GALLUZZO: 19 Q. My question was a little more specific 20 about Comcast and Cox. Are you familiar -- 21 withdrawn. 22 Did either Comcast or Cox use a CMTS that 23 was not -- withdrawn. I'll ask it a different way. 24 Did either Comcast or Cox use a CMTS in 25 2012 that was not a piece of equipment at a single</p>

<p style="text-align: right;">Page 34</p> <p>1 location at the head end or distribution hub?</p> <p>2 MR. PADMANABHAN: Objection. Form.</p> <p>3 THE WITNESS: Again, I don't see how it's</p> <p>4 relevant to the opinions in my declaration which are</p> <p>5 setting forth what one of ordinary skill would have</p> <p>6 understood to be a CMTS at the July 2012 time frame.</p> <p>7 BY MR. GALLUZZO:</p> <p>8 Q. Did you ask them?</p> <p>9 MR. PADMANABHAN: Objection. Form.</p> <p>10 THE WITNESS: I, again, I -- to answer</p> <p>11 your question, no. And, again, I don't see how that</p> <p>12 would be relevant to rendering opinions from the</p> <p>13 perspective of one of ordinary skill.</p> <p>14 BY MR. GALLUZZO:</p> <p>15 Q. So you didn't think it was relevant to ask</p> <p>16 your client and the co-defendant, two of the largest</p> <p>17 MSOs of the time, what architecture of CMTS they</p> <p>18 were using at the relevant period?</p> <p>19 MR. PADMANABHAN: Objection. Form.</p> <p>20 THE WITNESS: The opinions that I've</p> <p>21 rendered are, again, from the perspective of one of</p> <p>22 ordinary skill. And I do set forth what the major</p> <p>23 vendors such as Cisco and ARRIS were providing at</p> <p>24 that time. So the major vendors would be the ones</p> <p>25 that are providing equipment such as CMTSs to</p>	<p style="text-align: right;">Page 36</p> <p>1 THE WITNESS: You just told me that the</p> <p>2 term does not appear in the claims, and I'm -- the</p> <p>3 opinions that I'm setting forth in my declaration</p> <p>4 and that I'm here to answer your questions are with</p> <p>5 regards to what the claims actually state, not what</p> <p>6 if the claim language were completely different in</p> <p>7 some way.</p> <p>8 BY MR. GALLUZZO:</p> <p>9 Q. Have you ever heard of the term "ICMTS" or</p> <p>10 "Integrated CMTS"?</p> <p>11 A. Again, I would have to think about it.</p> <p>12 Are you asking from today, or are you asking back in</p> <p>13 2012? I would have to think about it.</p> <p>14 Q. At any point, have you ever heard that</p> <p>15 term before?</p> <p>16 MR. PADMANABHAN: Objection. Form.</p> <p>17 THE WITNESS: Again, I would need to think</p> <p>18 about it. It's -- people -- people use -- different</p> <p>19 people use different terminology, different words.</p> <p>20 I would need to think about it, consider what one of</p> <p>21 ordinary skill would understand and then answer your</p> <p>22 question.</p> <p>23 BY MR. GALLUZZO:</p> <p>24 Q. Fair to say you didn't consider that term</p> <p>25 in coming to your opinions in this case?</p>
<p style="text-align: right;">Page 35</p> <p>1 various MSOs in the space.</p> <p>2 BY MR. GALLUZZO:</p> <p>3 Q. Just for clarity of the record, could you</p> <p>4 explain what you mean when you say "MSO"?</p> <p>5 A. Typically an MSO is a multiservice</p> <p>6 operator, and they provide essentially triple play</p> <p>7 services.</p> <p>8 Q. But you'd agree with me that the claims of</p> <p>9 the '682 patent do not require an Integrated CMTS?</p> <p>10 They don't use those words?</p> <p>11 MR. PADMANABHAN: Objection. Form.</p> <p>12 THE WITNESS: The claims of the asserted</p> <p>13 patent simply states "CMTS." And one of ordinary</p> <p>14 skill at the relevant time period, which is July of</p> <p>15 2012, would know what a CMTS is and was at that time</p> <p>16 period.</p> <p>17 And I've explained that one of ordinary</p> <p>18 skill would understand a CMTS to be equipment</p> <p>19 located at the head end and which terminates the --</p> <p>20 the connection from the cable modems, the HFC</p> <p>21 network.</p> <p>22 BY MR. GALLUZZO:</p> <p>23 Q. What would one of skill in the art</p> <p>24 understand Integrated CMTS to be, or ICMTS, in 2012?</p> <p>25 MR. PADMANABHAN: Objection. Form.</p>	<p style="text-align: right;">Page 37</p> <p>1 MR. PADMANABHAN: Objection. Form.</p> <p>2 THE WITNESS: The opinions that I've set</p> <p>3 forth in the declaration are with regards to what</p> <p>4 the asserted patent's actual claim language is.</p> <p>5 If your question is did I consider</p> <p>6 modifying the claim language of the asserted patent</p> <p>7 and rendering opinions based on some modification of</p> <p>8 the claim language, I agree. I did not do that.</p> <p>9 BY MR. GALLUZZO:</p> <p>10 Q. That wasn't my question.</p> <p>11 My question was whether you considered the</p> <p>12 phrase "Integrated CMTS" as part of your opinions</p> <p>13 about what one of skill in the art would understand</p> <p>14 to be CMTS on its own in 2012.</p> <p>15 You didn't do that, did you?</p> <p>16 MR. PADMANABHAN: Objection. Form.</p> <p>17 THE WITNESS: Again, I don't understand</p> <p>18 how your question -- this question is different from</p> <p>19 the previous one.</p> <p>20 But with regards to the opinions I've set</p> <p>21 forth, I looked at the actual claim language which</p> <p>22 recites CMTS or the actual spelled-out version of</p> <p>23 the acronym CMTS. And the opinions that I've set</p> <p>24 forth are what would one of ordinary skill</p> <p>25 understand that to mean given that it was a term of</p>

<p style="text-align: right;">Page 38</p> <p>1 art at that time.</p> <p>2 And I've rendered what I believe one of</p> <p>3 ordinary skill would have understood that term to</p> <p>4 mean, and then I've pointed to document after</p> <p>5 document after document showing that that</p> <p>6 understanding is correct; that these other documents</p> <p>7 simply corroborate that understanding that one of</p> <p>8 ordinary skill would have had for that term.</p> <p>9 BY MR. GALLUZZO:</p> <p>10 Q. So just to be clear, the answer to my</p> <p>11 question would be correct, you did not do that?</p> <p>12 MR. PADMANABHAN: Objection. Form. Asked</p> <p>13 and answered. Misstates testimony.</p> <p>14 And, you know, I'm just gonna say for the</p> <p>15 record, Mr. Galluzzo, you're not presenting him with</p> <p>16 his declaration; you're just asking questions in the</p> <p>17 abstract so...</p> <p>18 MR. GALLUZZO: I told him he was more than</p> <p>19 welcome to look at his declaration any time he</p> <p>20 wanted.</p> <p>21 But I can represent for you that ICMTS and</p> <p>22 Integrated CMTS absolutely are not in the</p> <p>23 declaration.</p> <p>24 MR. PADMANABHAN: That's a misstatement on</p> <p>25 the record.</p>	<p style="text-align: right;">Page 40</p> <p>1 hundreds and hundreds of pages, and that's my</p> <p>2 answer. I've not memorized it, and I was never told</p> <p>3 that I needed to memorize it.</p> <p>4 And, as a practice, engineers don't</p> <p>5 memorize documents. That's the whole purpose of</p> <p>6 having specifications, so that people can refer to</p> <p>7 the specifications and read the specifications and</p> <p>8 then do things based on the specifications.</p> <p>9 Engineering is not a memorization game.</p> <p>10 BY MR. GALLUZZO:</p> <p>11 Q. I'm not asking you about the -- the</p> <p>12 details of the concept. I'm just asking if you've</p> <p>13 ever heard the phrase, to your knowledge, sitting</p> <p>14 here today, "DOCSIS Remote PHY"?</p> <p>15 MR. PADMANABHAN: Objection. Form. It's</p> <p>16 outside the scope of the declaration.</p> <p>17 MR. GALLUZZO: I mean, if you're gonna</p> <p>18 represent it's outside the scope, I'd be happy to</p> <p>19 move on.</p> <p>20 MR. PADMANABHAN: I don't even know what</p> <p>21 that means. Go ahead. Ask your questions. I</p> <p>22 didn't tell you not to ask your question. Object to</p> <p>23 form. Why don't you reask your question.</p> <p>24 BY MR. GALLUZZO:</p> <p>25 Q. Fair to say that, sitting here today, you</p>
<p style="text-align: right;">Page 39</p> <p>1 MR. GALLUZZO: Where is it?</p> <p>2 MR. PADMANABHAN: It's on paragraph 66.</p> <p>3 MR. GALLUZZO: I don't see it. But if I</p> <p>4 missed it, then my apologies.</p> <p>5 THE WITNESS: Line 15 -- paragraph 66,</p> <p>6 line 15.</p> <p>7 MR. GALLUZZO: Oh, there you go.</p> <p>8 Apologies, Dr. Chatterjee. I missed that one.</p> <p>9 BY MR. GALLUZZO:</p> <p>10 Q. Have you ever heard of a phrase -- or a</p> <p>11 term called "DOCSIS Remote PHY," P-H-Y?</p> <p>12 MR. PADMANABHAN: Objection. Form.</p> <p>13 THE WITNESS: Well, again, I think this is</p> <p>14 you're asking me questions about the specifications,</p> <p>15 you're asking me specifically with regards to</p> <p>16 DOCSIS. If you provide me the specification, I'm</p> <p>17 happy to take a look at it and answer your question.</p> <p>18 BY MR. GALLUZZO:</p> <p>19 Q. Are you able to answer my question without</p> <p>20 the specification?</p> <p>21 MR. PADMANABHAN: Objection. Form.</p> <p>22 Argumentative.</p> <p>23 THE WITNESS: You're asking -- you're</p> <p>24 asking me a question about the DOCSIS specification,</p> <p>25 and I'm saying I have not memorized hundreds and</p>	<p style="text-align: right;">Page 41</p> <p>1 can't tell me what DOCSIS Remote PHY is?</p> <p>2 MR. PADMANABHAN: Objection. Form.</p> <p>3 THE WITNESS: You -- you have the word</p> <p>4 "DOCSIS" in your question, which means that you're</p> <p>5 asking me about the usage of the term within the</p> <p>6 DOCSIS specification. I've told you that the DOCSIS</p> <p>7 specification is hundreds and hundreds and hundreds</p> <p>8 of pages long.</p> <p>9 You're telling me that I should have</p> <p>10 memorized hundreds of pages prior to this</p> <p>11 deposition, and I'm telling you I was never told</p> <p>12 that I needed to do that, and, Number 2, engineers</p> <p>13 don't memorize specifications because that would</p> <p>14 defeat the purpose of having specifications.</p> <p>15 BY MR. GALLUZZO:</p> <p>16 Q. Are you familiar with the concept of a</p> <p>17 distributed CMTS?</p> <p>18 MR. PADMANABHAN: Objection. Form.</p> <p>19 THE WITNESS: Are you asking me in the</p> <p>20 July 2012 time frame?</p> <p>21 BY MR. GALLUZZO:</p> <p>22 Q. Sure. Let's -- let's -- let me put it</p> <p>23 this way. I'll withdraw and reask.</p> <p>24 Let's look at paragraph 75 of your</p> <p>25 declaration.</p>

<p style="text-align: right;">Page 42</p> <p>1 Are you there?</p> <p>2 A. I am.</p> <p>3 Q. The first sentence refers to not -- POSITA</p> <p>4 not understanding that the '682 spec related to</p> <p>5 centralized or distributed, and what I want to focus</p> <p>6 on is the second sentence: "That would be</p> <p>7 inconsistent with the use of the term in the patent</p> <p>8 and the meaning of CMTS to a person of ordinary</p> <p>9 skill in the art at the time of the alleged</p> <p>10 invention. And the patent does not purport to</p> <p>11 redefine CMTS or disclose a new type of CMTS</p> <p>12 consistent with that definition."</p> <p>13 Do you see that?</p> <p>14 A. I do.</p> <p>15 Q. Is it your opinion that a person of skill</p> <p>16 in the art would understand a distributed CMTS to be</p> <p>17 a, quote, new type of CMTS in 2012?</p> <p>18 MR. PADMANABHAN: Objection. Form.</p> <p>19 THE WITNESS: With regards to this</p> <p>20 paragraph 75, it's simply stating that there's no</p> <p>21 disclosure in the patent, in the specifications, in</p> <p>22 the file history, in the figures, in the claims,</p> <p>23 anywhere with regards to a different type of CMTS or</p> <p>24 anything like that. It simply talks about a CMTS,</p> <p>25 which is a term of art which one of ordinary skill</p>	<p style="text-align: right;">Page 44</p> <p>1 BY MR. GALLUZZO:</p> <p>2 Q. In preparing your opinions in this case,</p> <p>3 did you do any research into the state of</p> <p>4 distributed CMTS technology prior to 2012 to</p> <p>5 determine whether distributed CMTSs were new or not</p> <p>6 as of 2012?</p> <p>7 MR. PADMANABHAN: Objection. Form.</p> <p>8 Vague.</p> <p>9 THE WITNESS: Again, I don't really</p> <p>10 understand your question.</p> <p>11 And even, again, talking about Mr. --</p> <p>12 Dr. Holobinko's declaration, he doesn't even cite to</p> <p>13 any document that shows this. He just says that he</p> <p>14 knew about some nebulous CMTS system and he cites to</p> <p>15 no documents. There's no evidence that even</p> <p>16 Dr. Holobinko knows about.</p> <p>17 So it seems like even Dr. Holobinko agrees</p> <p>18 with me that CMTS was, as I've set forth in my</p> <p>19 declaration, that it was a piece of equipment that</p> <p>20 terminates the cable modem's connection to the HFC</p> <p>21 network as well.</p> <p>22 BY MR. GALLUZZO:</p> <p>23 Q. Dr. Chatterjee, I'm moving to strike as</p> <p>24 nonresponsive when you started to talk about</p> <p>25 Dr. Holobinko. I didn't ask you about</p>
<p style="text-align: right;">Page 43</p> <p>1 would have understood.</p> <p>2 And that's my point in that paragraph.</p> <p>3 BY MR. GALLUZZO:</p> <p>4 Q. So is it your opinion that a person of</p> <p>5 ordinary skill would not understand what a</p> <p>6 distributed CMTS was in 2012?</p> <p>7 MR. PADMANABHAN: Objection. Form.</p> <p>8 Vague.</p> <p>9 THE WITNESS: Can you show me a document?</p> <p>10 Because just saying the word in a vacuum, I don't</p> <p>11 really understand what you, Mr. Galluzzo, are</p> <p>12 meaning by that term.</p> <p>13 So -- but what I'm telling you, and what</p> <p>14 I've made very clear in my declaration, is that the</p> <p>15 term "CMTS" was, in the relevant time period of</p> <p>16 July 2012, a term of art. Those of ordinary skill</p> <p>17 knew what a CMTS was.</p> <p>18 The patent -- the asserted patent does not</p> <p>19 disclose anything new with regards to a CMTS. And</p> <p>20 one of ordinary skill reading the patent would</p> <p>21 understand that it's talking about a CMTS, which</p> <p>22 I've set forth what that understanding would be in</p> <p>23 my declaration. And on top of that, I've cited to</p> <p>24 document after document after document after</p> <p>25 document that corroborates that understanding.</p>	<p style="text-align: right;">Page 45</p> <p>1 Dr. Holobinko; I asked you what you did.</p> <p>2 I'd like you to try to focus on my</p> <p>3 questions. If you don't understand my questions,</p> <p>4 please ask me to rephrase. But I'd like clear</p> <p>5 responses to my questions unless you do not</p> <p>6 understand them.</p> <p>7 MR. PADMANABHAN: Counsel -- Counsel --</p> <p>8 Counsel, you can ask your questions, and</p> <p>9 Dr. Chatterjee is -- will provide his responses.</p> <p>10 Okay. But --</p> <p>11 MR. GALLUZZO: You and I both know what</p> <p>12 he's doing.</p> <p>13 MR. PADMANABHAN: I think you're badgering</p> <p>14 him. I think that the -- the narrative's not</p> <p>15 necessary. And I think you can ask your questions.</p> <p>16 BY MR. GALLUZZO:</p> <p>17 Q. Dr. Chatterjee, in preparing your opinions</p> <p>18 in this case, did you do any research into the state</p> <p>19 of distributed CMTS technology prior to 2012?</p> <p>20 MR. PADMANABHAN: Objection. Form.</p> <p>21 Vague.</p> <p>22 THE WITNESS: In preparing my declaration,</p> <p>23 I set forth what one of ordinary skill would</p> <p>24 understand or would have understood the term "CMTS"</p> <p>25 to mean at the relevant time period of July 2012.</p>

<p style="text-align: right;">Page 46</p> <p>1 Clearly I did research because there is --</p> <p>2 again, as I've stated for you multiple times --</p> <p>3 there's document after document after document after</p> <p>4 document that I cite to in my declaration that</p> <p>5 corroborates the understanding that I've set forth</p> <p>6 in my declaration.</p> <p>7 So clearly I did research, and that</p> <p>8 research corroborated the construction, the</p> <p>9 definition, the understanding that I've set forth</p> <p>10 that one of ordinary skill would have had of that</p> <p>11 term.</p> <p>12 BY MR. GALLUZZO:</p> <p>13 Q. My question was a little more specific</p> <p>14 than research. I asked you about research into the</p> <p>15 state of distributed CMTS technology.</p> <p>16 Did you do any such research?</p> <p>17 MR. PADMANABHAN: Objection. Form. Asked</p> <p>18 and answered. Vague.</p> <p>19 THE WITNESS: So I think I answered your</p> <p>20 question. I did research into CMTS technology to</p> <p>21 make sure that what I was setting forth as the</p> <p>22 understanding of one of ordinary skill was correct.</p> <p>23 And as I've stated for you multiple times, I've</p> <p>24 cited to document after document after document</p> <p>25 after document that corroborates that understanding.</p>	<p style="text-align: right;">Page 48</p> <p>1 BY MR. GALLUZZO:</p> <p>2 Q. Please download those, and then I'm gonna</p> <p>3 ask you some questions.</p> <p>4 MR. PADMANABHAN: So we have a clear</p> <p>5 record with respect to your various motions to</p> <p>6 strike, Mr. Galluzzo, I don't even know that's</p> <p>7 appropriate or an actual thing that one can do in --</p> <p>8 in this deposition.</p> <p>9 But that being said, we obviously</p> <p>10 disagree. We'll just have a standing disagreement</p> <p>11 on that.</p> <p>12 THE WITNESS: Okay. I've downloaded them.</p> <p>13 BY MR. GALLUZZO:</p> <p>14 Q. Would it surprise you to learn that</p> <p>15 distributed CMTS technology was discussed and</p> <p>16 available in the art prior to 2012?</p> <p>17 MR. PADMANABHAN: Objection. Form.</p> <p>18 THE WITNESS: Again, the opinions that</p> <p>19 I've set forth are what one of ordinary skill would</p> <p>20 have understood the term "CMTS" to be in 2012.</p> <p>21 There -- there clearly may be projects and</p> <p>22 research that people are doing into different</p> <p>23 things, but I've set forth what one of ordinary</p> <p>24 skill would have understood the term to be or the</p> <p>25 term to mean as of the relevant time period.</p>
<p style="text-align: right;">Page 47</p> <p>1 So I did research into CMTSs. I've cited</p> <p>2 to the CMTSs provided by the major vendors at that</p> <p>3 time, which I believe were Cisco and ARRIS.</p> <p>4 And, again, you've told me not to talk</p> <p>5 about Dr. Holobinko, but even he is unable to cite</p> <p>6 to anything apart from what I've cited to, apart</p> <p>7 from the CMTSs provided by the major vendors, apart</p> <p>8 from the dictionary definitions that I've cited to,</p> <p>9 the DOCSIS definition books that I've cited to.</p> <p>10 So I believe, even though again you've</p> <p>11 told me not to talk about Dr. Holobinko, he seems to</p> <p>12 agree with me. He doesn't even have any</p> <p>13 documentation or evidence that's different than the</p> <p>14 evidence that I've cited to in my declaration.</p> <p>15 MR. GALLUZZO: Move to strike as</p> <p>16 nonresponsive as to references to Dr. Holobinko to</p> <p>17 the end.</p> <p>18 BY MR. GALLUZZO:</p> <p>19 Q. Dr. Chatterjee, I placed into the marked</p> <p>20 exhibits two exhibits, Exhibit 5 and Exhibit 6.</p> <p>21 (Whereupon Exhibit 5 was marked for</p> <p>22 identification.)</p> <p>23 (Whereupon Exhibit 6 was marked for</p> <p>24 identification.)</p> <p>25 ///</p>	<p style="text-align: right;">Page 49</p> <p>1 BY MR. GALLUZZO:</p> <p>2 Q. I'd like you to turn to Exhibit 5,</p> <p>3 Dr. Chatterjee. For the record, this is U.S. Patent</p> <p>4 Application Publication 2003/66087.</p> <p>5 Are you there with me?</p> <p>6 A. I've opened the document, yes.</p> <p>7 MR. PADMANABHAN: So, Vince, we've been</p> <p>8 going for an hour.</p> <p>9 MR. GALLUZZO: I'm hopefully about three</p> <p>10 to four minutes from a break.</p> <p>11 MR. PADMANABHAN: Okay. We've been going</p> <p>12 for an hour. Would you like a break now, or are you</p> <p>13 gonna take a break in three or four -- do you need</p> <p>14 to go three or four minutes longer?</p> <p>15 MR. GALLUZZO: I'd prefer to go three to</p> <p>16 four minutes longer unless it's an emergency.</p> <p>17 MR. PADMANABHAN: It's not an emergency,</p> <p>18 but we've been going an hour. There's -- you just</p> <p>19 introduced a new exhibit. So seems like a natural</p> <p>20 breaking point.</p> <p>21 MR. GALLUZZO: Dr. Chatterjee, do you</p> <p>22 require a break?</p> <p>23 THE WITNESS: It's not an emergency like</p> <p>24 you're stating. But given that I have this issue</p> <p>25 with my leg and my knee, getting my knee off of this</p>

<p style="text-align: right;">Page 50</p> <p>1 propped-up table and walking around would be helpful 2 for me. 3 MR. GALLUZZO: All right. Let's go off 4 the record. 5 THE VIDEO OPERATOR: We are going off the 6 record. The time is 10:08. 7 (Off the record at 10:08 a.m. and back 8 on the record at 10:25 a.m.) 9 THE VIDEO OPERATOR: We are back on the 10 record. The time is 10:25. 11 BY MR. GALLUZZO: 12 Q. Dr. Chatterjee, during the break, did you 13 discuss the substance of your testimony or Exhibits 14 5 or 6 with counsel? 15 A. I did not. Just walking with my crutches 16 takes a lot of time, unfortunately. 17 Q. Not a problem. I hope your leg and knee 18 are feeling better. If you need another break, 19 please just ask. 20 Let's turn to Exhibit 5. 21 Have you seen Exhibit 5 before today, to 22 your knowledge? 23 A. I don't think so. Is it cited in my 24 declaration? 25 Q. I'll represent to you that I don't believe</p>	<p style="text-align: right;">Page 52</p> <p>1 BY MR. GALLUZZO: 2 Q. Would you also agree that it discusses 3 distributed cable modem termination systems such as 4 is described in the first line of the abstract? 5 MR. PADMANABHAN: Objection. Form. 6 THE WITNESS: Well, I think you only read 7 a couple of words from that first sentence. I 8 believe the first sentence has a lot more than what 9 you read. 10 BY MR. GALLUZZO: 11 Q. Sure. And I'll agree with you there. But 12 at least part of what that first sentence is refers 13 to distributed cable modem termination systems? 14 A. I think that second through sixth word of 15 that sentence is that. But what the patent 16 application is getting at, I would need to take a 17 look at the document to actually tell you what it's 18 talking about. 19 But, again, just reading a little bit 20 further of that first sentence, it seems to be 21 talking about having modulators that are separate 22 from the chassis and even -- even in my declaration, 23 I am talking about those kind of modular CMTS 24 systems where the -- for example, the downstream 25 portions can be separate from the chassis.</p>
<p style="text-align: right;">Page 51</p> <p>1 that it is. If I'm wrong, counsel can correct me 2 since I was wrong earlier. But I don't believe it 3 was. 4 MR. PADMANABHAN: I -- sorry. I checked 5 last time, Mr. Galluzzo. But I -- I'm not gonna 6 take on the obligation of checking the accuracy of 7 your statements. With apologies, but you know... 8 BY MR. GALLUZZO: 9 Q. So let's -- let's assume it's not cited in 10 your declaration, Dr. Chatterjee. 11 Fair to say that you didn't review 12 Exhibit 5 in coming to your opinions in this case? 13 MR. PADMANABHAN: Objection. Form. 14 THE WITNESS: I think with the 15 representation that it's not been cited in my 16 declaration, and it seems to be a patent application 17 or patent publication, I don't believe I've reviewed 18 this, no. 19 BY MR. GALLUZZO: 20 Q. You'd agree with me that Exhibit 5 was 21 published April of 2003? 22 MR. PADMANABHAN: Objection. Form. 23 THE WITNESS: The patent application 24 publication date appears to be April 3rd, 2003. 25 ///</p>	<p style="text-align: right;">Page 53</p> <p>1 Q. Could you turn to Exhibit 6, please? For 2 the record, this is U.S. Patent Application 3 Publication Number 2004/45035? 4 A. Okay. I'm there. 5 Q. To your knowledge, have you seen this 6 Exhibit 6 before today? 7 A. I don't think so. But, again, just like 8 with the last, Exhibit 5, I don't see the relevance 9 of this to my opinions. 10 This one also seems to be a patent 11 application publication, and I would need to look at 12 what exactly this publication -- patent application 13 publication is disclosing or would teach one of 14 ordinary skill. 15 But, again, I don't see the relevance of 16 this to my declaration and the opinions contained 17 therein. 18 Q. So you can tell that it's not relevant 19 even though you haven't reviewed it? 20 MR. PADMANABHAN: Objection. Form. 21 Argumentative. 22 THE WITNESS: My point is I think I've 23 told you that I need to -- to the extent that it's 24 not cited in my declaration, I would need to review 25 it to understand what it's stating.</p>

<p style="text-align: right;">Page 54</p> <p>1 But based on what you were asking me, some 2 patent application publication where there's no 3 information whether it was ever realized as a 4 product is simply a patent application concept. I 5 don't believe that one or two such patent 6 applications or concepts would be relevant to or 7 would change the understanding of what one of 8 ordinary skill would have of a CMTS. 9 And the asserted patent simply talks about 10 CMTS. And I've set forth in my declaration what one 11 of ordinary skill would understand a CMTS to mean at 12 the relevant time period, and I've cited to document 13 after document after document that confirms that 14 understanding at the relevant time period of 15 July 2012. 16 BY MR. GALLUZZO: 17 Q. I'll represent to you that Exhibit 6 is 18 not cited in your declaration. 19 With that representation and assuming it 20 to be true, fair to say you didn't review Exhibit 6 21 in coming to your opinions? 22 MR. PADMANABHAN: Objection. Form. 23 THE WITNESS: If it's not cited in my 24 declaration, then I would agree with you that I did 25 not review this Exhibit 6 with regards to or in</p>	<p style="text-align: right;">Page 56</p> <p>1 A. To be clear, the environmental factors is 2 not a metric in and of itself. Environmental 3 factors is a class of metrics that I talk about in 4 that section of my declaration. 5 Q. Thank you for that clarification. Maybe 6 let me shortcut us here a bit. 7 Can -- as part of the environmental 8 factors, can ambient temperature affect or be 9 affected by SNR? 10 A. I believe I talked about that in the 11 "Environmental Conditions" section of my report. I 12 did talk about moisture, heat, things like that. 13 Q. Let's focus on temperature for a moment. 14 Is it your opinion that a person of skill 15 in the art would have trouble discerning whether 16 ambient temperature or is not an SNR-related metric? 17 A. One of ordinary skill would not be able to 18 determine with reasonable certainty whether -- your 19 question is related to ambient temperature, whether 20 it is or is not an SNR-related metric, yes. 21 Q. So, in your view, ambient temperature 22 could be an SNR-related metric as used in the 23 '682 patent? 24 A. I'm stating that ambient temperature, as a 25 multitude of other factors, can impact SNR or be</p>
<p style="text-align: right;">Page 55</p> <p>1 relation to rendering the opinions set forth in my 2 declaration. 3 But, again, like I've explained, the 4 patent, the asserted patent, is talking about CMTS. 5 It's a term of art, and one of ordinary skill would 6 clearly understand what a CMTS is or was at the 7 relevant time period of July 2012. And I've set 8 forth that understanding, and I've cited to a 9 multitude of documents that corroborate and confirm 10 that understanding. 11 BY MR. GALLUZZO: 12 Q. Could you turn to paragraph 86 of your 13 declaration, please? 14 A. Okay. I'm there. 15 Q. In this paragraph -- paraphrasing -- you 16 discuss some of your opinions about the term 17 "SNR-related metric." I'd like to focus on the 18 second sentence: "A wide range of additional 19 metrics may, in theory, impact SNR or be impacted by 20 SNR." 21 Here's my question: Other than the three 22 you've listed -- latency, throughput, and 23 environmental factors -- sitting here today, can you 24 think of any other metrics that can impact or be 25 impacted by SNR?</p>	<p style="text-align: right;">Page 57</p> <p>1 impacted by SNR, but it's not -- it's not clear with 2 reasonable certainty whether that would fall within 3 the bounds of the claimed SNR-related metric. 4 And I'll give you another example. Like 5 even something like ISI, intersymbol interference, 6 that can impact or it can -- it can be used to 7 measure, for example, signal quality which 8 Dr. Holobinko, in one of his changing and 9 inconsistent definitions or understandings of 10 SNR-related metric says could be signal quality. 11 ISI can be used to measure signal quality, 12 but ISI has no relationship with regards to noise. 13 ISI is not about noise. 14 So that's -- on the flip side, that's 15 another example of where one of ordinary skill would 16 simply not understand what falls within the scope of 17 or outside the scope of SNR-related metric. 18 Q. I'm just trying to get a sense for what 19 your opinion is. 20 Are you saying then that things like 21 temperature and ISI could be SNR-related metrics 22 under the '682 patent? 23 A. That's the point; that one of ordinary 24 skill would not have a way to determine whether it 25 is or is not.</p>

<p style="text-align: right;">Page 58</p> <p>1 Like I've talked about in my declaration, 2 heat or moisture, you know, there -- there is some 3 relationship where they can impact SNR. And then on 4 the flip side, I just gave you the example of ISI, 5 that it's not even noise. 6 And so it's not even about SNR or noise, 7 but -- but it would fall under Dr. Holobinko's 8 changing -- or at least one of his changing and 9 inconsistent definitions and understandings of 10 SNR-related metric. 11 Q. Is localized lightning strikes something 12 that can affect SNR? 13 MR. PADMANABHAN: Objection. Form. 14 THE WITNESS: I believe kind of related to 15 what you were asking me about ambient temperature. 16 Yes, if a -- if a lightning strike catches something 17 nearby on fire, that would raise the ambient 18 temperature and, yes, it could impact SNR. 19 But even -- that's what I'm getting at; 20 that ambient temperature, moisture, these kind of 21 environmental factors may impact SNR, but one of 22 ordinary skill would not have any way to determine 23 with reasonable certainty whether it falls within 24 the scope or outside of the scope of the SNR-related 25 metric term.</p>	<p style="text-align: right;">Page 60</p> <p>1 think that a lightning strike would be understood to 2 in some way impact SNR. It's not the lightning 3 strike. If a lightning strikes and nothing happens, 4 it's not gonna impact SNR potentially. 5 What I'm talking about really is the -- 6 the aftereffect of a lightning strike and what 7 happens when that lightning strikes nearby and if 8 something catches on fire. That's really what I'm 9 talking about. 10 BY MR. GALLUZZO: 11 Q. Are you saying that a person of skill in 12 the art would be certain that lightning strikes are 13 not an SNR-related metric? 14 MR. PADMANABHAN: Objection. Form. 15 THE WITNESS: I've never stated anything 16 like that in my declaration. I think I've answered 17 your question a couple of times already; that what 18 I'm talking about is really the heat and the 19 temperature. 20 I'm not talking about what causes it. I'm 21 talking about that if the ambient temperature 22 increases, that can impact SNR. But then, it's not 23 clear to one of ordinary skill with reasonable 24 certainty whether that would fall within the scope 25 or the bounds of SNR-related metric.</p>
<p style="text-align: right;">Page 59</p> <p>1 BY MR. GALLUZZO: 2 Q. In your view, is the relative occurrence 3 of localized lightning strikes something that could 4 be an SNR-related metric? 5 MR. PADMANABHAN: Objection. Form. 6 THE WITNESS: I don't think lightning 7 strike. But like I -- lightning strike is -- is 8 something that can cause ambient temperature 9 increases is what I'm talking about. But I -- I 10 haven't thought about beyond that. 11 So I did explain in my declaration that 12 heat, moisture, they can, and it's known that they 13 can and do, or may impact SNR as well. 14 And so the answer to your question, 15 lightning strike can result in increased 16 temperature. 17 BY MR. GALLUZZO: 18 Q. So if a lightning strike can, through 19 different steps, result in increased SNR, is it your 20 opinion that a person of skill in the art would view 21 lightning strikes as maybe or maybe not an 22 SNR-related metric? They can't tell? Is that your 23 opinion? 24 MR. PADMANABHAN: Objection. Form. 25 THE WITNESS: Again, I don't -- I don't</p>	<p style="text-align: right;">Page 61</p> <p>1 BY MR. GALLUZZO: 2 Q. Yeah, I'm just trying to get a sense for 3 whether, in your opinion, at -- in your declaration 4 as we've discussed here today, whether lightning 5 strikes are something that a person of skill in the 6 art would have trouble discerning, whether it is or 7 is not an SNR-related metric. 8 So are you saying it is definitely not an 9 SNR-related metric, are you saying they would have 10 trouble determining whether it is or is not, or are 11 you saying it definitely is? Those are the three 12 options I see. 13 MR. PADMANABHAN: Objection to the form of 14 the question. 15 THE WITNESS: I think what I'm saying is 16 that I have not considered that. 17 I've considered -- I'm simply trying to 18 state that very mainstream common metrics that one 19 of ordinary skill would think about in relation to 20 these kinds of communication systems, that those of 21 ordinary skill would simply have no way to 22 reasonably determine whether it falls within the 23 scope. 24 And I've explained in quite a bit of 25 detail various examples of these metrics and why one</p>

<p style="text-align: right;">Page 62</p> <p>1 of ordinary skill would be unable to discern with 2 reasonable certainty whether it falls within or 3 outside of the scope of the claim term. 4 BY MR. GALLUZZO: 5 Q. Would a person of skill in the art 6 understand ambient temperature to be a performance 7 metric? 8 MR. PADMANABHAN: Objection. Form. 9 THE WITNESS: It could be a performance 10 metric given that temperature can influence and 11 impact SNR. So it could be. 12 BY MR. GALLUZZO: 13 Q. If you were writing a peer-reviewed 14 article to be submitted in a scientific publication, 15 would you feel comfortable characterizing ambient 16 temperature around a coaxial line as a performance 17 metric? 18 MR. PADMANABHAN: Objection. Form. 19 THE WITNESS: I believe it can be a 20 performance metric. As I've explained, it can 21 impact the performance of a channel for various 22 reasons, including that the SNR can be impacted by 23 temperature. 24 BY MR. GALLUZZO: 25 Q. If you were to tell one of your friends in</p>	<p style="text-align: right;">Page 64</p> <p>1 metric. It can be a performance metric. It can be 2 a quality metric. 3 But the question is that one of ordinary 4 skill would have no way to reasonably -- with 5 reasonable certainty determine whether it falls 6 within the scope of SNR-related metric. 7 And I've told you even the ISI example is 8 on the flip side; that there is no connection, 9 relationship with noise. And that can be a metric 10 as well. That can -- that can be used to measure 11 signal quality as well. So that's another example 12 of, again, one of ordinary skill would simply have 13 no way to determine with reasonable certainty 14 whether it falls within or outside the scope of the 15 claim term. 16 BY MR. GALLUZZO: 17 Q. Can the strength of the earth's magnetic 18 field affect SNR? 19 MR. PADMANABHAN: Objection. Form. 20 THE WITNESS: Magnetic fields can impact 21 SNR. 22 If you have -- I believe if you have very 23 strong magnets that you want to play around with or 24 put around cabling, they can impact the signal 25 quality, and they can impact things like SNR.</p>
<p style="text-align: right;">Page 63</p> <p>1 industry that the ambient temperature around a given 2 piece of coaxial cable is 98 degrees Fahrenheit, do 3 you think that person would understand the 4 performance of the signal in that coaxial cable? 5 MR. PADMANABHAN: Objection. Form. 6 THE WITNESS: It is a type of metric. It 7 is a metric that could be used. But it's not clear 8 to those of ordinary skill whether that would fall 9 within the scope of SNR-related metric or not. 10 BY MR. GALLUZZO: 11 Q. Let's flip the roles. Let's say one of 12 your colleagues in the field told you that the 13 ambient temperature around a length of coaxial cable 14 was 98 degrees Fahrenheit. 15 How would you characterize the performance 16 of the signals in that cable? 17 MR. PADMANABHAN: Objection. Form. 18 Vague. 19 THE WITNESS: I'm not sure how to answer 20 that question. It's, again, just like your other 21 hypotheticals, it's a very high-level, confusing, 22 vague hypothetical. You're asking me to 23 characterize the performance without knowing what is 24 actually happening and what is going on. 25 As I've explained to you, it can be a</p>	<p style="text-align: right;">Page 65</p> <p>1 BY MR. GALLUZZO: 2 Q. You might not have heard. I asked about 3 the strength of the earth's magnetic field. 4 Can that impact SNR? 5 A. Well, I think I -- I answered for you that 6 magnetic fields can impact SNR. I believe it would 7 really be up to where the cabling is on the earth, 8 what is around it, if there's shielding around it. 9 Again, it's -- these are high-level, 10 vague, incomplete hypotheticals you are asking me, 11 and it's not possible to answer these questions. 12 Q. So you agree that magnetic fields can 13 impact SNR. 14 In that case, would a person of skill in 15 the art understand where the cabling is on the 16 earth, as you said, to be an SNR-related metric or 17 not? 18 MR. PADMANABHAN: Objection. Form. 19 THE WITNESS: Is your question where, like 20 in terms of, like, latitude and longitude a piece of 21 cable is located? 22 BY MR. GALLUZZO: 23 Q. Sure. I'll reask. 24 Would a person of the skill in the art 25 believe that -- in your view -- that the latitude</p>

<p style="text-align: right;">Page 66</p> <p>1 and longitude of the location of a piece of cable to 2 be an SNR-related metric given that the earth's 3 magnetic field can affect SNR? 4 MR. PADMANABHAN: Objection. Form. 5 THE WITNESS: So I think I explained to 6 you that magnetic fields can impact SNR. 7 And depending on what is -- depending on a 8 lot of other information that would need to be 9 provided, I guess that can be a metric. 10 If there's a very strong magnet or a 11 magnetic field in a particular location, yes, things 12 like latitude, longitude can be used as a -- 13 determining or a measure of signal quality for 14 performance because it would be known that that is 15 impacting SNR. 16 So from that perspective, again, it 17 would -- it could be a metric; but, again, one of 18 ordinary skill would have -- would not be able to 19 determine with reasonable certainty whether it falls 20 within the scope of SNR-related metric or not. 21 BY MR. GALLUZZO: 22 Q. If an animal chews through a coaxial 23 cable, would that decrease SNR or affect SNR? 24 A. Well, I think if the animal chews through 25 the cable, there's probably not transmission</p>	<p style="text-align: right;">Page 68</p> <p>1 BY MR. GALLUZZO: 2 Q. And maybe I didn't make the connection. 3 Does that mean that SNR has been affected? 4 MR. PADMANABHAN: Objection. Form. 5 THE WITNESS: If you're measuring SNR on 6 the other side and the animal has destroyed the 7 cable, there's nothing going through to the other 8 side where the measurement is happening. 9 BY MR. GALLUZZO: 10 Q. So, in that case, in your view, is the 11 presence of the animal chewing through the cable an 12 SNR-related metric or could it be an SNR-related 13 metric? 14 MR. PADMANABHAN: Objection. Form. 15 THE WITNESS: Again, this is a nonsensical 16 question. I just explained to you that if the 17 animal chews through the cable, there's nothing 18 going through to the receiver. 19 And so your question doesn't make any 20 sense. 21 BY MR. GALLUZZO: 22 Q. Well, I believe your opinion is that there 23 are a number of things that can affect SNR. A 24 person of skill in the art would not be sure whether 25 they are or are not an SNR-related metric.</p>
<p style="text-align: right;">Page 67</p> <p>1 happening on that cable. 2 Q. Let's say the animal chews through it part 3 way so there is some transmission remaining. 4 Would that affect SNR? 5 MR. PADMANABHAN: Objection. Form. 6 THE WITNESS: I think, again, you're -- 7 you're asking these very high-level, vague 8 questions. How much did the animal chew through? 9 Only the outer casing? What kind of cable are we 10 talking about? If it's a coax, did the animal go 11 through the insulation and, if so, how much? 12 You're -- it's -- you're not -- you keep 13 on asking these very vague, confusing, nonsensical, 14 technical questions that simply cannot be answered. 15 BY MR. GALLUZZO: 16 Q. Is there an amount of coaxial cable 17 through which an animal can chew that will affect 18 SNR? 19 MR. PADMANABHAN: Objection. Form. 20 THE WITNESS: Well, I think I answered 21 part of that question for you; that if the animal 22 chews through all of it, there's probably not any 23 communications happening because the cable has been 24 terminated. 25 ///</p>	<p style="text-align: right;">Page 69</p> <p>1 Is this one of those? Is the presence of 2 an animal chewing through the coaxial cable one of 3 those that, in your view, a person of skill in the 4 art would have trouble discerning whether it is or 5 is not an SNR-related metric? 6 MR. PADMANABHAN: Objection. Form. 7 THE WITNESS: Like I explained even for 8 your lightning example, I'm -- that's not the point 9 of my declaration. I'm not stating that -- what may 10 happen. 11 Like when we talked about ambient 12 temperature, I've made it very clear in my 13 declaration that temperature can have an impact on 14 SNR. How that temperature increased, I'm not 15 talking about that. And I'm not stating that how -- 16 like if you go there with a blowtorch and increase 17 the temperature, I'm not saying that's an 18 SNR-related metric, or I'm not even saying it's a 19 metric. That's somebody doing something to cabling, 20 and it's similar to your lightning example. 21 The point is that there are a number of 22 factors that can impact SNR or be impacted by SNR, 23 and one of ordinary skill would simply not be able 24 to tell with reasonable certainty whether those 25 metrics are within the scope of or outside the scope</p>


<p style="text-align: right;">Page 70</p> <p>1 of SNR-related metric. 2 BY MR. GALLUZZO: 3 Q. Is this one of those factors or metrics? 4 MR. PADMANABHAN: Objection. Form. 5 THE WITNESS: By "this" -- again, you're 6 talking about the animal chewing through a cable? 7 BY MR. GALLUZZO: 8 Q. Yes. 9 MR. PADMANABHAN: Same objection. 10 THE WITNESS: I'm not stating that an 11 animal chewing through a cable is a metric or a 12 factor. 13 What I am stating with regards to your 14 lightning example, which I thought was equally 15 without -- it doesn't make technical sense with 16 regards to the questions that you're asking, there 17 can -- heat and ambient temperature can impact SNR. 18 There are different ways that SNR can -- 19 or there are different ways that temperature can be 20 increased or decreased. Lightning can be one of 21 them. I'm not stating that having a lightning 22 strike somebody's house is a metric or an 23 SNR-related metric or any type of metric. 24 All I'm stating is that ambient 25 temperature is known to impact SNR, and one of</p>	<p style="text-align: right;">Page 72</p> <p>1 Bit error rate is the number of erroneous 2 bits received over the total number of bits 3 received. 4 So I don't really understand your question 5 that whether the environmental factors are like bit 6 error rate. 7 BY MR. GALLUZZO: 8 Q. Okay. Let me try to go through some of 9 the factors, then. 10 So here's my question: Is ambient heat 11 like bit error rate? 12 MR. PADMANABHAN: Objection. Form. 13 THE WITNESS: Ambient temperature is the 14 temperature surrounding, for example, a cable. I 15 don't understand what it means to be like bit error 16 rate. 17 BY MR. GALLUZZO: 18 Q. Well, are you able to say whether it is or 19 is not like bit error rate? 20 A. Well, I -- 21 MR. PADMANABHAN: Objection. Objection. 22 Form. 23 Go ahead. 24 THE WITNESS: I explained to you that 25 ambient temperature is a temperature. And I</p>
<p style="text-align: right;">Page 71</p> <p>1 ordinary skill would simply not be able to tell with 2 reasonable certainty whether that metric of ambient 3 temperature or, as another example, moisture, falls 4 within the scope of SNR-related metric or not. 5 BY MR. GALLUZZO: 6 Q. Are any of the environmental factors that 7 you're opining on like bit error rate? 8 MR. PADMANABHAN: Objection. Form. 9 THE WITNESS: Can you ask -- I don't think 10 I understood your question. 11 BY MR. GALLUZZO: 12 Q. So you've opined about a number of 13 environmental factors. We've been talking about a 14 few of them, ambient temperature being one. 15 Are you with me so far? 16 A. Yes. We've been talking about ambient 17 temperature being one, yes. 18 Q. And so I'd like to expand the 19 environmental factors you refer to in paragraph 90 20 of your declaration. 21 Are any of the environmental factors on 22 which you are opining like bit error rate? 23 MR. PADMANABHAN: Objection. Form. 24 THE WITNESS: I'm not sure what you mean 25 by, "Are they like bit error rate?" Okay?</p>	<p style="text-align: right;">Page 73</p> <p>1 explained to you that bit error rate is the number 2 of erroneously received bits over the total number 3 of received bits. 4 So, from that perspective, they're 5 different metrics, if that's your question. 6 Obviously bit error rate is not measured in 7 Fahrenheit or Celsius, if that's your question. 8 BY MR. GALLUZZO: 9 Q. Is there anything about the two that are 10 alike? 11 MR. PADMANABHAN: Objection. Form. 12 THE WITNESS: There is. They both can 13 be -- they can impact or be impacted by 14 SNR-related -- or they can -- let me back up. 15 Sorry. They can be impacted by or impact SNR. 16 And so with regards to the ambient 17 temperature, as I've set forth, it's unclear 18 whether, with reasonable certainty, one of ordinary 19 skill would simply not understand whether it falls 20 within the scope of the SNR-related metric claim 21 term. 22 BY MR. GALLUZZO: 23 Q. Does consistently low SNR affect 24 subscriber or customer satisfaction? 25 A. Again, this is another vague, confusing,</p>

<p style="text-align: right;">Page 74</p> <p>1 high-level question that you're asking. 2 If you're asking about customer 3 satisfaction, for example, with pricing, then it has 4 nothing to do with one or the other. 5 So it -- all of these questions that 6 you're asking me are very vague and high level and 7 confusing, and it's difficult to answer. 8 Q. Can consistently low SNR affect subscriber 9 satisfaction with the received services? 10 MR. PADMANABHAN: Objection. Form. 11 THE WITNESS: I haven't really thought 12 about that. But, again, it -- subscribers are not 13 looking at SNR; they're looking at bandwidth. And 14 so even if you have low or relatively low SNR but 15 you have huge bandwidth, I think subscribers will be 16 very happy. 17 So, again, this is what I'm stating; that 18 you're asking very confusing, vague, incomplete 19 hypotheticals that it's very difficult to answer. 20 BY MR. GALLUZZO: 21 Q. Does ambient temperature characterize 22 signal or channel quality? 23 MR. PADMANABHAN: Objection. Form. 24 THE WITNESS: They -- ambient temperature 25 could be a measure of channel quality, channel</p>	<p style="text-align: right;">Page 76</p> <p>1 BY MR. GALLUZZO: 2 Q. Are you familiar with modulation error 3 rate, MER? 4 A. It's -- it's a different type of error 5 rate calculation similar to SER, BER. 6 Q. Would you agree that SNR and MER are often 7 used interchangeably by those of skill in the art? 8 MR. PADMANABHAN: Objection. Form. 9 THE WITNESS: I don't believe that they're 10 used interchangeably. For example, it would not be 11 used interchangeably because if you think about in 12 terms of what is happening, how the -- how the data 13 may be encoded, it simply does not make sense to use 14 them interchangeably. 15 BY MR. GALLUZZO: 16 Q. Do you agree that SNR is related to MER? 17 MR. PADMANABHAN: Objection. Form. 18 THE WITNESS: I believe modulation error 19 rate can be impacted by SNR, and, on the flip side, 20 it may impact SNR. But, again, it -- one of 21 ordinary skill would not be able to determine 22 whether it falls within the scope of the claim term 23 SNR-related metric. 24 BY MR. GALLUZZO: 25 Q. Do you agree that SNR and modulation error</p>
<p style="text-align: right;">Page 75</p> <p>1 performance. 2 Again, Dr. Holobinko has numerous 3 inconsistent and ever-changing definitions. They 4 can fall within his different inconsistent 5 definitions, but one of ordinary skill would not 6 understand whether that falls within the scope of 7 SNR-related metric or not. With reasonable 8 certainty one of ordinary skill would not be able to 9 make that determination. 10 BY MR. GALLUZZO: 11 Q. So you're telling me that ambient 12 temperature -- this is your testimony, that ambient 13 temperature can characterize signal quality or 14 channel quality. How? 15 MR. PADMANABHAN: Objection. Form. 16 Argumentative. 17 THE WITNESS: If you're looking at -- 18 if -- we've discussed, and I believe it's discussed 19 in my declaration as well, that temperature can 20 impact SNR. And, in fact, SNR could also impact 21 ambient temperature as well. So, therefore, knowing 22 that the -- knowing the temperature, the ambient 23 temperature, it can characterize or -- or it can be 24 a measure of the channel quality. 25 ///</p>	<p style="text-align: right;">Page 77</p> <p>1 rate, MER, are both ratios indicating the quality of 2 signal transmission? 3 MR. PADMANABHAN: Objection. Form. 4 THE WITNESS: I think MER is a -- it could 5 be a metric. Like I explained to you, it depends on 6 what is happening. If nothing is being modulated, 7 if you just have a signal going over a cable, that's 8 a very different situation. 9 So, again, these are vague hypotheticals 10 without information necessary to answer these 11 questions. 12 BY MR. GALLUZZO: 13 Q. Do you agree that they're both ratios 14 indicating the quality of a signal transmission? 15 MR. PADMANABHAN: Objection. Form. 16 THE WITNESS: I think that's what I just 17 explained to you; that without knowing the details 18 about the actual environment, what the setup is, 19 they -- they may have no relationship at all. 20 BY MR. GALLUZZO: 21 Q. Let's turn to paragraph 81 of your 22 declaration. 23 A. Okay. I'm there. 24 Q. Here you have an excerpt from the 25 '682 patent, Column 3, lines 54 to 63. That's what</p>

<p style="text-align: right;">Page 78</p> <p>1 I'm gonna refer to.</p> <p>2 You'd agree with me that this portion of</p> <p>3 the '682 patent defines four examples of what a</p> <p>4 person of skill in the art would understand an</p> <p>5 SNR-related metric to be?</p> <p>6 A. Yes, I believe this is providing four</p> <p>7 examples and then it continues and/or the like.</p> <p>8 Q. So just to make sure I'm on the same page</p> <p>9 as you, do you agree with me that a person of skill</p> <p>10 in the art would have no trouble understanding that</p> <p>11 these four examples are, in fact, SNR-related</p> <p>12 metrics?</p> <p>13 MR. PADMANABHAN: Objection. Form.</p> <p>14 THE WITNESS: I believe that one of</p> <p>15 ordinary skill would understand these four to be</p> <p>16 examples provided by the patent of being SNR-related</p> <p>17 metrics.</p> <p>18 BY MR. GALLUZZO:</p> <p>19 Q. And the person of the skill in the art,</p> <p>20 because they're reading the specification and taking</p> <p>21 it as true, wouldn't be confused; those are, in</p> <p>22 fact, SNR-related metrics, those four, right?</p> <p>23 MR. PADMANABHAN: Objection. Form.</p> <p>24 THE WITNESS: Well, these four are</p> <p>25 extremely closely related. The first two are</p>	<p style="text-align: right;">Page 80</p> <p>1 not to be within the scope of SNR-related metric.</p> <p>2 BY MR. GALLUZZO:</p> <p>3 Q. So I thought your opinion was one thing,</p> <p>4 but it sounds like it's another, so let me try to</p> <p>5 clarify.</p> <p>6 Is it your opinion that a person of skill</p> <p>7 in the art would not be able to determine even one</p> <p>8 SNR-related metric; that they would be unclear about</p> <p>9 any metric, whether it's SNR-related, even including</p> <p>10 the examples provided in the specification?</p> <p>11 Is that your opinion?</p> <p>12 MR. PADMANABHAN: Objection. Form.</p> <p>13 Misstates testimony.</p> <p>14 THE WITNESS: I'm not stating that these</p> <p>15 four examples that are provided would confuse one of</p> <p>16 ordinary skill, whether it's in or out.</p> <p>17 I'm stating that one of ordinary skill</p> <p>18 would not understand what the bounds or the scope of</p> <p>19 the term is. The specification expressly states</p> <p>20 "and/or the like." The specification is expressly</p> <p>21 stating that it's not limited to these four.</p> <p>22 And so my point is that one of ordinary</p> <p>23 skill would not understand what is or is not, beyond</p> <p>24 a couple of these examples that are provided, fall</p> <p>25 within the scope or outside of the scope of the</p>
<p style="text-align: right;">Page 79</p> <p>1 basically SNR at a particular frequency and SNR over</p> <p>2 a range of frequencies. And then the last two are</p> <p>3 the denominator or the numerator for SNR.</p> <p>4 BY MR. GALLUZZO:</p> <p>5 Q. That wasn't my question. I'm just making</p> <p>6 sure that you're not saying there would be still</p> <p>7 confusion about whether these are in or out.</p> <p>8 So here's my question: Would there be any</p> <p>9 confusion in a person of ordinary skill's mind as to</p> <p>10 whether these four examples are in or out of being</p> <p>11 an SNR-related metric?</p> <p>12 MR. PADMANABHAN: Objection. Form.</p> <p>13 THE WITNESS: I think these are four</p> <p>14 examples. And then I believe other portions from</p> <p>15 other patents provide at least two more examples.</p> <p>16 But the point that I'm making in my</p> <p>17 declaration is that one of ordinary skill would not</p> <p>18 understand with reasonable certainty what is in or</p> <p>19 out of scope of the definition. And the point I</p> <p>20 raised about these are mostly related is because,</p> <p>21 again, Dr. Holobinko seems to concede that this is a</p> <p>22 term of degree, and he says that things have to be</p> <p>23 sufficiently closely related. So it would leave one</p> <p>24 of ordinary skill not knowing with reasonable</p> <p>25 certainty what is sufficiently closely related or</p>	<p style="text-align: right;">Page 81</p> <p>1 claim term. And I've given numerous examples in my</p> <p>2 declaration why one of ordinary skill would be --</p> <p>3 would not be able to determine or ascertain with</p> <p>4 reasonable certainty.</p> <p>5 And then, I even gave you today some</p> <p>6 examples with regards to ISI and why it would even</p> <p>7 lead to more confusion.</p> <p>8 And then I've also repeatedly told you how</p> <p>9 Dr. Holobinko also seems to be -- not to be able to</p> <p>10 tell with reasonable certainty what the meaning of</p> <p>11 the claim term is because he keeps on inconsistently</p> <p>12 and changing his definition of what he believes the</p> <p>13 claim term to mean.</p> <p>14 BY MR. GALLUZZO:</p> <p>15 Q. Would that same testimony about the</p> <p>16 confusion apply to the other two examples as well;</p> <p>17 that there is no confusion that those six examples</p> <p>18 are in -- your opinion is that whatever's beyond</p> <p>19 that is what's confusing?</p> <p>20 A. My opinion is not about confusion or not.</p> <p>21 My opinion is that one of ordinary skill in --</p> <p>22 within the context of the asserted patent would not</p> <p>23 know the scope of the claim term.</p> <p>24 And as you pointed me to earlier on in the</p> <p>25 day in that "Legal Summary" section, my</p>

<p style="text-align: right;">Page 82</p> <p>1 understanding is that the law requires that a claim 2 must particularly point out and distinctly claim the 3 subject matter which the patentee regards as the 4 invention. 5 So my opinion is that, from a technical 6 perspective -- I'm opining from a technical 7 perspective -- one of ordinary skill in the context 8 of the asserted patent would not know what is in or 9 out -- would not know with reasonable certainty what 10 is in or out of the scope of the claim term and the 11 claim. 12 Q. Yeah. I'm sorry. That's just not my 13 question, and I used the same language you did which 14 is confusing. So if by using your own words it 15 created problems, I'm sorry. 16 My question -- I'm trying to get a sense 17 of the guidelines of your opinion in a really simple 18 way, so let me state this as clearly as I can. 19 The '682 patent, including the 20 incorporated by reference application, includes six 21 examples which it says are SNR-related metrics. 22 Do you disagree that a person of ordinary 23 skill in the art would understand at least those six 24 examples to be SNR-related metrics? 25 MR. PADMANABHAN: Objection. Form.</p>	<p style="text-align: right;">Page 84</p> <p>1 Q. How many additional examples would the 2 specification need to give for a person of skill to 3 have certainty on that? 4 MR. PADMANABHAN: Objection. Form. 5 THE WITNESS: Again, this is like a very 6 high-level, vague hypothetical you're asking. It's 7 not about giving examples. It's not about if the 8 patent gave three more examples, it would be clear 9 to one of ordinary skill with reasonable certainty 10 what the claim term means. 11 The point is it's not about the number of 12 examples. The patent is using a certain claim term. 13 It's not a term of art. And one of ordinary skill 14 would be unable to ascertain with reasonable 15 certainty what the bounds of that claim term are. 16 MR. GALLUZZO: Let's go off the record. 17 THE VIDEO OPERATOR: One moment. 18 We are going off the record. The time is 19 11:18. 20 (Off the record at 11:18 a.m. and back 21 on the record at 11:27 a.m.) 22 THE VIDEO OPERATOR: We are back on the 23 record. The time is 11:27. 24 BY MR. GALLUZZO: 25 Q. Dr. Chatterjee, is bit error rate an</p>
<p style="text-align: right;">Page 83</p> <p>1 THE WITNESS: That's -- that's what I'm 2 trying to explain to you. 3 My opinion is that one of ordinary skill 4 would not know what the scope is of the claim term 5 like you're asking in your question, that those are 6 at least in the understanding of one of ordinary 7 skill. But my opinion is that one of ordinary skill 8 would not know what else falls within the scope of 9 the claim term. 10 And I've given a number of examples in my 11 declaration, and I gave you at least one more 12 example today as well, that shows that one of 13 ordinary skill would not be able to ascertain with 14 reasonable certainty whether -- what is in or what 15 is out of scope of the claim term and the claims. 16 BY MR. GALLUZZO: 17 Q. Beyond those six, what is in or out beyond 18 the six? That's really all I'm trying to get at. 19 A. Well, the patent expressly states "and/or 20 the like," so the patent is expressly stating that 21 it's -- lot of other things can fall within the 22 scope of the claim term. And that's my point; that 23 one of ordinary skill would not be able to ascertain 24 with reasonable certainty what falls within the 25 scope of the claim term and the claims.</p>	<p style="text-align: right;">Page 85</p> <p>1 SNR-related metric in the meaning of the 2 '682 patent? 3 A. I believe bit error rate is an example 4 provided by the parent patent. 5 Q. Does that mean -- 6 A. And I believe I discussed that in my 7 declaration as well. 8 Q. Does that mean that it is an SNR-related 9 metric in the meaning of the '682 patent? 10 A. I think we talked about this before; that 11 one of ordinary skill would understand the six 12 examples provided to be examples of SNR-related 13 metric, but one of ordinary skill would not be able 14 to determine with reasonable certainty other metrics 15 that may or may not fall within the scope of the 16 claim term. 17 Q. And that's because of the "and/or the 18 like" at the end of the list? 19 A. Well, not only that, the -- the patent 20 does not state that it's limited to those examples. 21 And so the claim term would not be -- like I 22 explained, the claim term is not a term of art. One 23 of ordinary skill would not know what the bounds are 24 with reasonable certainty of that claim term, and 25 that there are many metrics that are used. Some are</p>

<p style="text-align: right;">Page 86</p> <p>1 related to SNR, some are influenced by SNR, some 2 influence SNR. 3 And then, like I explained today, even 4 something like ISI, it's not related to noise, but 5 it can fall within Dr. Holobinko's -- at least one 6 or more of Dr. Holobinko's inconsistent 7 constructions or proposed constructions of the term 8 "SNR-related metric." 9 So one of ordinary skill would simply not 10 be able to determine with reasonable certainty the 11 scope of that claim term. 12 Q. If the patent did say that it was limited 13 to those six examples, that SNR-related metric is 14 these six examples, would your opinion still apply 15 that the claim term would be indefinite? 16 MR. PADMANABHAN: Objection. Form. 17 THE WITNESS: One more thing before I -- 18 just popped into my head. To answer your last 19 question, I believe the patent also uses EG for 20 SNR-related metric. So that was another part of the 21 answer as well. 22 But, again, this is related to -- kind of 23 similar to the questions that you were asking me in 24 the morning. I've considered what the patent 25 actually states. Like, in the morning, you were</p>	<p style="text-align: right;">Page 88</p> <p>1 Here is perhaps my last question: Did you 2 run any searches or did you do any searches to 3 determine if the SNR-related metric was used in any 4 patents or articles prior to 2012 other than the 5 '682 patent family? 6 MR. PADMANABHAN: Objection. Form. 7 BY MR. GALLUZZO: 8 Q. And, again, this would be prior to issuing 9 your April 19th declaration. 10 A. I don't recall if I did. 11 Again, I recall Dr. Holobinko cites to a 12 couple of patents which he states -- recites the 13 words "SNR-related metric." And I'll note that I 14 think he ran -- he's citing to a book from 1920, and 15 I -- I think he's citing to either two or three 16 documents that he found that seems to use the word 17 "SNR-related metric." And it's not even clear -- he 18 doesn't even go into what the context is of what 19 he's -- what he's pointing to. 20 And the fact that he's only able to 21 identify, I think, either two or three documents 22 from 1920, and now we're sitting in 2024, about a 23 hundred years, I think it further undermines -- 24 Q. Dr. Chatterjee, I didn't ask you about -- 25 A. -- Dr. Holobinko's opinion.</p>
<p style="text-align: right;">Page 87</p> <p>1 asking me if the claim language were completely 2 different, night and day difference between what the 3 claims are actually reciting versus something else. 4 The opinions that -- 5 BY MR. GALLUZZO: 6 Q. That's not what I was asking, 7 Dr. Chatterjee, but continue. 8 A. Well, maybe I misunderstood your question. 9 You -- you told me your question was if the patent 10 said something different. 11 And that's my point. The patent does not 12 say something different. And the opinions and the 13 analysis that I've performed is based on what the 14 patent actually states and not if the patent were 15 something totally different. 16 If the patent were something totally 17 different, I would need to consider that, I would 18 need to think about it, and then I would render 19 opinions based on that. 20 And so, again, based on what the patent, 21 the intrinsic record, the claims are reciting -- 22 Q. Dr. Chatterjee, I don't need another 23 recitation of your opinion. We've heard it. We've 24 heard it a number of times. I'll withdraw the 25 question if it matters.</p>	<p style="text-align: right;">Page 89</p> <p>1 Q. I didn't ask you about Mr. Holobinko. 2 MR. GALLUZZO: I'm gonna move to strike as 3 nonresponsive as to discussion of Mr. Holobinko. 4 BY MR. GALLUZZO: 5 Q. You don't -- so you didn't do any searches 6 to determine whether any other publications or 7 patents use the term "SNR-related metric," or at 8 least you didn't find anything prior to your 9 declaration, correct? 10 MR. PADMANABHAN: Objection. Form. 11 THE WITNESS: I think I answered your 12 question at the -- when you asked me this last time, 13 which I stated that I don't recall whether I 14 searched or not. And that's why I began explaining 15 that even Dr. Holobinko, who seems to have done a 16 search, was only able to find like two or three in a 17 hundred years. 18 So I believe that, like I was explaining 19 to you, it seriously undermines his opinion, and it 20 further supports my opinions with regards to this 21 claim term as set forth in my declaration. 22 MR. GALLUZZO: I have no further 23 questions, but I'll move to strike the portion about 24 Dr. -- Mr. Holobinko as nonresponsive. 25 MR. PADMANABHAN: We obviously disagree</p>

<p style="text-align: right;">Page 90</p> <p>1 regarding the appropriateness of your moving to 2 strike, and we'll understand your questions are 3 concluded. We will reserve questions for the claim 4 construction hearing. 5 THE VIDEO OPERATOR: Anyone else have any 6 questions for the witness? 7 Okay. We are going off the record at 8 11:35 a.m., and this concludes today's testimony 9 given by Dr. Sandeep Chatterjee. The total number 10 of media units used was three and will be retained 11 by Veritext Legal Solutions. 12 (Off-the-record discussion.) 13 THE COURT REPORTER: Counsel, did you want 14 to order a copy of the transcript? 15 MR. PADMANABHAN: Yes, please. 16 MR. GALLUZZO: We'll need an expedite. 17 THE COURT REPORTER: I have a same-day 18 rough draft. When would you like the final? 19 MR. GALLUZZO: Tuesday the 14th. If not, 20 then the 15th. 21 THE COURT REPORTER: Tuesday the 14th is 22 fine. 23 MR. GALLUZZO: We'll take it then, please. 24 THE COURT REPORTER: K.P., did you want 25 the rough draft?</p>	<p style="text-align: right;">Page 92</p> <p>1 CERTIFICATE OF REPORTER 2 I, the undersigned, a Certified Shorthand 3 Reporter of the State of California, do hereby 4 certify: 5 That the foregoing proceedings were taken 6 before me at the time and place herein set forth; 7 that any witnesses in the foregoing proceedings, 8 prior to testifying, were administered an oath; that 9 a verbatim record of the proceedings was made by me 10 using machine shorthand, which was thereafter 11 transcribed under my direction; and that the 12 foregoing is an accurate transcription thereof. 13 Further, that if the foregoing pertains to 14 the original transcript of a deposition in a federal 15 case, before completion of the proceedings, review 16 of the transcript [X] was [] was not requested. 17 I further certify that I am neither 18 financially interested in the action, nor a relative 19 or employee of any attorney of any party to this 20 action. 21 IN WITNESS WHEREOF, I have this date 22 subscribed my name. 23 DATED: 24  25 MEGAN F. ALVAREZ CSR No. 12470, RPR</p>
<p style="text-align: right;">Page 91</p> <p>1 MR. PADMANABHAN: Yes, ma'am. 2 (TIME NOTED: 11:37 a.m.) 3 * * * * * 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p style="text-align: right;">Page 93</p> <p>1 Veritext Legal Solutions 2 1100 Superior Ave 3 Suite 1820 4 Cleveland, Ohio 44114 5 Phone: 216-523-1313 6 7 May 14, 2024 8 To: Krishnan Padmanabhan, Esq. 9 10 Case Name: Entropic Communications, LLC v. Comcast Corporation 11 Veritext Reference Number: 6684756 12 13 Witness: Sandeep Chatterjee, PhD Deposition Date: 5/10/2024 14 15 Dear Sir/Madam: 16 17 Enclosed please find a deposition transcript. Please have the witness 18 review the transcript and note any changes or corrections on the 19 included errata sheet, indicating the page, line number, change, and 20 the reason for the change. Have the witness' signature notarized and 21 forward the completed page(s) back to us at the Production address 22 shown 23 above, or email to production-midwest@veritext.com. 24 25 If the errata is not returned within thirty days of your receipt of this letter, the reading and signing will be deemed waived. Sincerely, Production Department NO NOTARY REQUIRED IN CA</p>

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<p>1 DEPOSITION REVIEW CERTIFICATION OF WITNESS</p> <p>2</p> <p>3 ASSIGNMENT REFERENCE NO: 6684756 CASE NAME: Entropic Communications, LLC v. Comcast DATE OF DEPOSITION: 5/10/2024 WITNESS' NAME: Sandeep Chatterjee, PhD In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me. I have made no changes to the testimony as transcribed by the court reporter.</p> <p>8</p> <p>9 Date Sandeep Chatterjee, PhD 10 Sworn to and subscribed before me, a Notary Public in and for the State and County, 11 the referenced witness did personally appear and acknowledge that:</p> <p>12 They have read the transcript; 13 They signed the foregoing Sworn Statement; and 14 Their execution of this Statement is of their free act and deed.</p> <p>15 I have affixed my name and official seal 16 this ____ day of ____, 20__.</p> <p>17</p> <p>18 Notary Public 19 Commission Expiration Date</p> <p>20 21 22 23 24 25</p>	<p>1 ERRATA SHEET VERITEXT LEGAL SOLUTIONS MIDWEST</p> <p>2 ASSIGNMENT NO: 6684756</p> <p>3 PAGE/LINE(S) / CHANGE /REASON</p> <p>4 _____</p> <p>5 _____</p> <p>6 _____</p> <p>7 _____</p> <p>8 _____</p> <p>9 _____</p> <p>10 _____</p> <p>11 _____</p> <p>12 _____</p> <p>13 _____</p> <p>14 _____</p> <p>15 _____</p> <p>16 _____</p> <p>17 _____</p> <p>18 _____</p> <p>19 _____</p> <p>20 Date Sandeep Chatterjee, PhD 21 SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ 22 DAY OF ____, 20__.</p> <p>23 _____</p> <p>24 Notary Public</p> <p>25 _____</p> <p>Commission Expiration Date</p>
<p>1 DEPOSITION REVIEW CERTIFICATION OF WITNESS</p> <p>2</p> <p>3 ASSIGNMENT REFERENCE NO: 6684756 CASE NAME: Entropic Communications, LLC v. Comcast DATE OF DEPOSITION: 5/10/2024 WITNESS' NAME: Sandeep Chatterjee, PhD In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me. I have listed my changes on the attached Errata Sheet, listing page and line numbers as well as the reason(s) for the change(s). I request that these changes be entered as part of the record of my testimony.</p> <p>10</p> <p>11 I have executed the Errata Sheet, as well as this Certificate, and request and authorize that both be appended to the transcript of my testimony and be incorporated therein.</p> <p>13 Date Sandeep Chatterjee, PhD</p> <p>14</p> <p>15 Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that:</p> <p>17 They have read the transcript; They have listed all of their corrections in the appended Errata Sheet; 18 They signed the foregoing Sworn Statement; and 19 Their execution of this Statement is of their free act and deed.</p> <p>20 I have affixed my name and official seal 21 this ____ day of ____, 20__.</p> <p>22</p> <p>23 Notary Public</p> <p>24</p> <p>25 Commission Expiration Date</p>	

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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